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ABSTRACT

The status of postsecondary allied health and health-related programs in Pennsylvania was studied. Among the data presented are the following: types of awards offered in 1976-77 by program at four-year institutions; the average number of graduates for 1969-73 and the number projected for 1974-78 by program, and 1973 enrollments by sex; programs under development or considerations for development in 1974, anticipated enrollment, and estimated number of graduates per year from 1975-1980; selected American Medical Association approved/accredited hospital education program offered in 1974 by county and total numbers offered by the State and nationwide; estimated employment of selected health personnel in hospitals broken down by bed size and a comparison of the estimate full-time and part-time personnel for 1968 and 1974; nursing home employees in 1974 in selected health occupation; registered nurse programs offered by hospital diploma schools of nursing for 1975; associate degree nursing programs offered in hospitals and public vocational schools in 1974-75; and data on 1970 employment and 1980 projected employment in selected health occupations. Recommendations are included. (SW)

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Allied Health, Nursing and Health-Related Manpower Supply and Demand in Pennsylvania

By Alfonso S. Zawadski
Division of Research
Bureau of Information Systems
Pennsylvania Department of Education
1977

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TABLE OF CONTENTS

Page

LIST OF TABLES vii

LIST OF FIGURES ix

ACKNOWLEDGMENTS x

OVERVIEW xi

CHAPTER

I. OBSERVATIONS AND RECOMMENDATION 1

A. Integrated Efforts 1

Recommendation 1 1
Recommendation 2 1
Recommendation 3 1
Recommendation 4 1

B. Education and Other 1

Recommendation 5 1
Recommendation 6 1
Recommendation 7 2
Recommendation 8 2
Recommendation 9 2

C. Nursing Home Needs 2

Recommendation 10 2
Recommendation 11 2

PAGE

CHAPTER

II. THE PROBLEM OF HEALTH OCCUPATION COMPLEXITY 3

III. HIGHER EDUCATION. 5

A. Higher Education as a Source of Supply of Health Occupations Personnel 5

B. Potential Supply of Health Occupations Personnel Resulting from Programs Anticipated by Higher Education Institutions. 11

C. College-Bound Seniors Aspiring to Health Occupation Programs. 14

IV. OTHER SOURCES OF SUPPLY OF HEALTH OCCUPATION PERSONNEL. 17

A. Hospital-Based Programs 17

B. Allied Medical Education: AMA Accredited Programs. 20

V. HOSPITALS 24

A. Hospitals as a Source of Demand 24

B. Hospital Employment in Select Occupations 24

C. Hospital Employment in Select Health Occupations, by Bed Size 26

D. Comparison of Select Health Profession and Technicians Employe in Hospitals in Pennsylvania, 1968 and 1974. . . . 32

VI. NURSING HOMES AS A SOURCE OF DEMAND 36

A. Nursing Home Services 36

B. Distribution of Nursing Homes in Pennsylvania 36

C. Comparison of Nursing Home Facilities, 1969-1975. 40

D. Nursing Home Employment in Pennsylvania in Select Health Occupations. 42

E. Nursing Home Employment in 1974 by Select Health Occupations 44

PAGE

CHAPTER

VI. (Cont'd)

F. Comparison of Select Health Professions and Technical Employes in Nursing Homes in Pennsylvania, 1968 and 1974 46

G. Population Growth and Its Effect on Nursing Homes 49

VII. PENNSYLVANIA'S PROGRAMS IN NURSING EDUCATION. 53

A. Overview of Nursing Services and Nursing Education. . . 53

B. Nursing Program Trends for Pennsylvania 54

C. Baccalaureate and Associate Degree Nursing Programs . . 58

VIII. INVENTORY OF PENNSYLVANIA'S REGISTERED NURSES 62

A. An Overview 62

B. Distribution of Professional Nurses in Pennsylvania: 1972 Inventory. 64

C. Professional Nurses' Educational Attainment (derived from the 1972 Inventory of Pennsylvania Nurses) 68

IX. PRACTICAL NURSING 73

A. Practical Nursing Programs. 73

X. PROFESSIONAL LICENSURE. 77

A. A Comparison of Professional Nursing Program Sectors With Regard to Licensing Examination Findings 77

XI. HEALTH OCCUPATIONS AND PROFESSIONS. 83

A. Selected Health Occupations and Professions in Pennsylvania, 1970 and 1980 83

BIBLIOGRAPHY. 87

APPENDICES

A. Occupation Titles in the Health Fields. 89

B. Selected Health Program Degree/Certificates, 1976-77, in Pennsylvania Colleges and Universities 94

PAGE

APPENDICES

C. Selected Education Programs in the Hospital and Health Fields (AMA Approved/Accredited) in Pennsylvania, 1974. 97

D. Selected Health Occupations Training Programs Administered by Hospitals in Pennsylvania, 1974 101

E. AMA Accredited Allied Medical Education Programs in Pennsylvania, 1974 103

F. Hospitals, by Bed Size and County, in Pennsylvania, 1975. 111

G. Estimated Number of Employes in Pennsylvania Hospitals by Bed Size and Selected Occupations. 112

H. Licensed and/or Approved Nursing Homes in Pennsylvania, 1974. 115

I. Estimated Number of Employes in Pennsylvania Nursing Homes by Bed Size and Select Occupations. 118

J. Registered Nurses, Ratio of Employment and Ratio Rank by County. 119

K. Basic Professional Preparation and Highest Degree Held for Full-Time Registered Nurses in Pennsylvania, 1972 121

L. Basic Professional Preparation and Highest Degree Held for Part-Time Registered Nurses in Pennsylvania, 1972 123

M. Basic Preparation and Highest Degree Held for Inactive Nurses in Pennsylvania, 1972. 125

N. Employment in Selected Health Professions and Occupations in Pennsylvania, 1970 (Employment in Medical and Other Health Services), (Employment in Business, Industry and Other Services) 127

O. Projected Employment in Selected Health Occupations in Pennsylvania, 1980 (Employment in Medical and Other Health Services), (Employment in Business, Industry and Other Services) 129

LIST OF TABLES

TABLE		PAGE
1.	Outline of Health Service Titles in Active or Supportive Health Professions/Occupations	4
2.	Selected Health Program Degrees/Certificates, 1976-77, in Pennsylvania Four-Year Institutions	6
3.	Health and Health-Related Programs Offered at Pennsylvania Colleges and Universities (Includes Only Those Institutions Responding to Survey Questionnaire)	8
4.	Health and Health-Related Programs Developed or under Consideration for Development in Pennsylvania, 1973-1980	10
5.	First-Choice Preference by Programs Completely Related to the Health Professions, 1974-75 and 1975-76 College-Bound Seniors, United States	16
6.	First-Choice Preference by Programs Completely Related to the Health Professions, 1974-75 and 1975-76 College-Bound Seniors, Pennsylvania	16
6A.	United States and Pennsylvania Comparison of First-Choice Preference by Program Completely Related to the Health Professions, 1975-76 College-Bound Seniors	16
7.	Number of AMA-Accredited Allied Medical Education Programs in Pennsylvania and the United States, 1974	21
8.	Federal and Nonfederal Hospitals in Pennsylvania, by Type, Indicating Full-Time Equivalent Employes, 1974	25
9.	Estimated Employment of Selected Health Occupation Personnel in Pennsylvania Hospitals	27
10.	Estimated Number of Employes in Pennsylvania Hospitals by Bed Size and Select Occupations	29
11.	A Comparison of the Estimated Number of Personnel Employed in Pennsylvania Hospitals by Select Occupations, 1968 and 1974	33
12.	Nursing Homes, by Bed Size and County, in Pennsylvania, 1975	38
13.	Nursing Homes, by County and Patient Beds, in Pennsylvania 1969 and 1975	41
14.	Estimated Full-Time and Part-Time Nursing Home Employes by Selected Health Occupations in Pennsylvania, 1974	43

TABLE		PAGE
15.	Estimated Number of Employes in Pennsylvania Nursing Homes by Bed Size and Select Occupations.	45
16.	Full-Time and Part-Time Personnel Employed in Nursing Homes in Pennsylvania by Select Occupations, 1968 and 1974.	47
17.	Pennsylvania Population Projections to 1990 by County and Persons Aged 65 and Over	50
18.	Registered Nurse Programs Offered in Pennsylvania Hospital Diploma Schools of Nursing, 1975	56
19.	Baccalaureate Degree Nursing Programs Offered in Pennsylvania Higher Education Institutions, 1973-1975	60
20.	Associate Degree Nursing Programs Offered in Pennsylvania Higher Education Institutions, 1973-1975.	61
21.	Employed and Inactive Registered Nurses by County in Pennsylvania, 1972.	65
22.	Highest Degree Held by Professional Nurses by Higher Education Regions in Pennsylvania, 1972	72
23.	Practical Nursing Programs Offered in Pennsylvania Hospital Schools of Nursing, 1974-1975.	74
24.	Practical Nursing Programs Offered in Pennsylvania Higher Education Institutions, 1974-1975.	74
25.	Practical Nursing Programs Offered in Pennsylvania Public Vocational Schools, 1974-1975	75
26.	Comparison of Professional Nursing Schools in the Registered Nurse Licensing Examination.	78
27.	Employment in 1970 and Projected 1980 Employment in Selected Health Occupations in Pennsylvania	84
28.	Employment in 1970 and Projected 1980 Employment in Selected Health Professions in Pennsylvania	84

LIST OF FIGURES

FIGURE		PAGE
1.	Selected Education Programs in the Hospital and Health Fields (AMA Approved/Accredited) in Pennsylvania, 1974	18
2.	Selected Health Occupations Training Programs Administered by Hospitals in Pennsylvania Counties, 1974.	19
3.	Nursing Home Facility Services Provided.	37
4.	Pennsylvania Population Trends, Select Age Groups 1970-1990. . .	52
5.	Types of Advanced Nursing Programs and Number in Pennsylvania, 1923-1976	55
6.	Comparison of Supply and Demand Projections for Professional Nurses and Physicians in the United States, 1980. .	63
7.	Employed Professional Nurses Per 100,000 Population, 1972. . . .	67
8.	State Board of Education Higher Education Planning Regions . . .	69
9.	Growth in the Number of Applicants Examined for Professional Nurse Licensure in Pennsylvania, by Program, 1967, 1971, 1975 and 1976.	79
10.	Failure Rate by Program of Those Seeking Licensure as a Registered Nurse, 1967, 1971, 1975 and 1976.	81
11.	Professional Licensing Average Standard Median Scores, by Program Sector, 1967-1976	82

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In addition, significant and essential data was graciously furnished by Pennsylvania colleges and universities and by many hospitals and nursing homes in the Commonwealth. Despite their busy schedules, they prepared and forwarded urgently needed information which became the focal point of this report.

OVERVIEW

This study was conducted at the request of the State Board of Education to determine the status of postsecondary allied health and health-related programs in the Commonwealth. It examines some of the sources of supply for the health occupations and, to a limited extent, the degree of health occupation demand. The study therefore involved the examination of a wide variety of health-related programs and occupations with the objective of providing data useful for planning. It also indicates trends in health occupation education programs, particularly in the postsecondary education institutions of Pennsylvania.

This report focuses on several major areas relating to the health occupations exclusive of medicine, osteopathy and dentistry. It includes data on: (1) the sources of trained personnel from the Commonwealth's higher education institutions; (2) the supply of personnel from other sources, such as hospital-based education programs; (3) the demand for health workers in hospitals and nursing homes; (4) nursing employment and education; (5) employment projections in selected health occupations; and (6) implications for higher education based on the findings and trends observed.

Although the report deals with allied health professions in general, it places a strong emphasis on nursing services because nurses comprise the largest single segment of health employes in the nation. More specifically, information has been provided on: (1) employment of nurses in hospitals and nursing homes, (2) nurses' levels of educational attainment and (3) nurse-population ratios by county in Pennsylvania.

This report also covers a wide range of other health occupations, showing some trends in health education program developments at postsecondary levels and providing employment projections. It discusses, in addition, some implications that might be especially meaningful to Pennsylvania's colleges and universities. For example, there is an excess of program offerings and enrollments in some fields and a scarcity in others.

There are now more than 600 primary and alternate job titles in the health field according to the U.S. Department of Health, Education and Welfare[1] (Appendix A). This report is concerned only with those health and health-related occupations that are supportive to primary care in areas such as medicine, osteopathy and dentistry. The wide range of such supportive services makes it difficult to present the spectrum of health supportive occupations in great detail, particularly as they relate to supply and demand. This report, therefore, is an overview and a compendium of available data for a select number of occupations.

For the convenience of the reader, a first chapter summarizes the general observations and recommendations derived by the author from the findings contained in the report as a whole. Some recommendations concern the need for cooperation between the Departments of Health and Education in certain types of activities, including:

---

1 Health Resources Statistics, U.S. Department of Health, Education and Welfare, Public Health Services, Health Resources Administration, National Center for Health Statistics, Rockville, Md., 1974, p. 3.

A. Collect supply and demand statistics, analyze them and disseminate results to academic counselors and appropriate personnel at all training facilities.

B. Provide in-service training for employed medical personnel and reentry training for professional nurses and others who plan to work after a period of time away from a constantly changing field.

C. Plan for future needs in the education of nurses.

D. Provide for education of personnel to work specifically in the expanding field of nursing homes and care facilities for the elderly and disabled.

CHAPTER I

OBSERVATIONS AND RECOMMENDATIONS

A. Integrated Efforts

Observation. Substantial increases in the need for people in the health occupations are expected to continue.

Recommendations. It is recommended that the Departments of Education and Health continue to work cooperatively in:

1. Determining health occupation needs.

2. Modifying education and training programs to meet these needs.

3. Encouraging guidance counselors at all levels to publicize these needs and careers in health.

4. Minimizing excessive duplication of education and training programs.

B. Educational and Other

Observation. In 1972 some 39 per cent of Pennsylvania's 96,000 licensed registered nurses were not employed as nurses. Also there is evidence that hospitals need more employees in the supportive occupations who are both more highly trained and prepared to perform a variety of related tasks.

Recommendations.

5. Returnees to nursing after a 5-year absence should either take appropriate refresher courses or pass appropriate proficiency examinations.

6. Provision should be made to increase the proficiency and flexibility of people in health occupations.

Observation. In recent years 22 hospital diploma schools have been discontinued but 61 remain. Higher educational institutions in Pennsylvania in the last 14 years have increased associate degree nursing programs from 3 to 18 and baccalaureate nursing programs from 7 to 21. Practical nurse programs grew from 32 in 1963 to 52 in 1976 (eight community colleges and many area vocational-technical schools conduct practical nurse programs).

Recently a federal projection indicates a possible national oversupply of professional nurses by 1980. Yet rural, sparsely populated areas have relatively few nurses per 1,000 population and only three per cent of Pennsylvania nurses have a master's or doctoral degree.

Recommendations.

7. Educational institution roles with regard to nursing programs should be examined and policies established to aid these institutions adjust to changing needs for nursing personnel.

8. More recruitment of nurse trainees from sparsely populated areas is needed since there is a tendency for graduates to seek employment in regions from which they were recruited.

9. More people should be attracted to graduate programs in nursing.

C. Nursing Home Needs

Observation. Nursing homes is a rapidly growing industry. In 1974-75 Pennsylvania added some 5,000 nursing home beds. This reflects the rapid growth in population of those 65 and older. Between 1970 and 2000 the Pennsylvania population aged 65 and over is projected to increase by about 865,000.

Recommendations.

10. New educational approaches including gerontology training should be considered to prepare people to work in nursing homes.

11. Specifically designed programs are needed to educate nursing home administrators.

CHAPTER II

THE PROBLEM OF HEALTH OCCUPATION COMPLEXITY

There is an exceptionally large number of health profession and occupation titles about which educators and health administrators must be concerned, especially when they relate to the problems of manpower supply and demand. The U.S. Department of Health, Education and Welfare, for instance, listed more than 600 health occupational titles in 1974.[2] For the most part, these titles include occupations for which special training or extensive education is necessary in order to qualify for practice or employment in a health setting. For example, the "primary title" for physician includes 63 alternate titles, many of which require specialty skills for entry into the wide range of occupations in medicine and osteopathy. To qualify for many of these "alternate titles," physicians must often undergo unique, extensive and additional training before they acquire the degree of skill necessary for specialized practice. Similarly, there are 37 nursing and related service occupation titles, ranging from the important but basic occupation of nurses' aide to a number of nursing titles requiring higher quality education and extensive clinical experience to gain proficiency and technical skills to quality for professional status. Finally, educators and health authorities must be equally concerned with a considerable number of subspecialties (scientists, administrators and academicians) that are not as intimately related to health care as physicians, nurses and allied health personnel, but are vital to research, innovation and management in the health fields.

To facilitate a better understanding of the complexities involved in defining, delimiting or categorizing the large number of health-related occupational titles, Table 1 broadly outlines the major areas considered supportive to primary care (medicine, osteopathy and dentistry). This table is intended to condense and compartmentalize the more than 600 occupational titles having an impact on health delivery services. The reader is cautioned, however, that new occupational titles appear to be emerging as technological developments increase in the health industry. Obviously, these developments will tend to expand the number of health occupation titles, thereby adding to the already existing complexities in health personnel studies.

Table 1 also serves as a starting point in this report for the reader to be able to identify the chief, but relatively few, occupations that are most active in direct health service (nursing, medicine, osteopathy, dentistry) as distinguished from the broadly designed but highly significant supportive, academic, administrative, etc., occupations.

Appendix A contains the detailed listing of the more than 600 health occupation titles mentioned in this section.

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[2] Ibid., p. 515.

Table 1

Outline of Health Service Titles in Active or Supportive Health Professions/Occupations[a]

Actively Engaged in Direct Service	Actively Supportive			Scientific/ Engineering/ Academic	Administrative and Related Services
	Laboratory/Technology/ Technician Service	Therapeutic/Rehabilitative Service	Other Technical/ Specialty		
Medicine and Osteopathy	Clinical Laboratory	Occupational Therapy	Animal Technical	Anthropology/ Sociology	Administration (Health)
Dentistry	Dental Allied	Physical Therapy	Cardiopulmonary	Basic Sciences (Health Field)	Automatic Data Processing
	Nursing, R.N.	Respiratory Therapy	Community Health Aide	Biomedical Engineering	Health and Vita Statistics
	Nursing Related	Special Rehabilitative	Electrocardiograph/ Electroencephalograph Technical	Health Education	Health Information and Communicatior
	Opticianry	Social Work	Emergency Medical	Psychology	Library
	Optometry Allied	Speech Pathology/ Audiology	Extracorporeal Circulation		Medical Records
	Orthotic/Prosthetic	Vocational Rehabilitation	Operating Room		Secretarial and Office
	Podiatric Allied		Ophthalmic Assistance		
	Radiologic		Orthoptist		
			Physician's Asst.		
			Veterinary		

Other Actively Engaged in Direct Service	Other Supportive Food/Nutrition and Related	Not Classified
Chiropractic	Dietetic and Nutritional Service	Economic Research
Optometry	Food and Drug Protective Service	Funeral Director and Embalmer
Podiatry		Midwifery
Pharmacy		

[a]Source: Health Resources Statistics, U.S. Department of Health, Education and Welfare, National Center for Health Statistics, Rockville, Md., 1974.

CHAPTER III

HIGHER EDUCATION

A. Higher Education as a Source of Supply of Health Occupation Personnel

Table 2 summarizes select health program offerings in Pennsylvania's four-year colleges and universities in 1976. The table provides an overview of allied health and health-related programs that will serve to focus attention on some of the areas of concern to be discussed later in this report. For example, more four-year institutions are conducting programs in medical technology (52), nursing (49), social work and helping services (29) and speech therapy (16) than in other programs. Table 2 does not include programs offered at the branch campuses and other two-year colleges in the Commonwealth. However, summarized below is a comparison of the broadly defined four-year college/university programs (from Table 2) with similar programs offered at branch campuses and two-year higher education institutions. Detailed information concerning branch campuses and two-year colleges may also be found in Appendix B of this report.

Summary of Pennsylvania Degree/Certificate Offerings
1976-77

Program	Four-Year Colleges/ Universities	Branch Campus	Two-Year	TOTAL
Dental Services	21	2	7	30
Clinical Laboratory	76	19	6	101
Dietary/Nutritional	9	18	2	29
Medical Records	4	2	4	10
Nursing Service	66	28	23	117
Pharmacy-Related	14	4	2	20
Therapeutic	105	10	12	127
Radiologic	14	0	3	17
Rehabilitation	2	0	0	2
Other:	5	0	9	14
Assistant to Physician	(3)	0	0	(3)
Medical Assisting	(2)	0	(9)	(11)
Environmental	26	34	2	62
TOTAL	342	117	70	529

Table 2

Selected Health Program Degrees/Certificates 1976-77, in Pennsylvania Four-Year Institutions[a]

Programs	Number of Institutions	Type Awards*								Total Awards
		EX	C	A	B	M	FP	D	TC	
DENTAL SERVICES										
Dental Hygiene and Dental Assisting	13		2	1	10				8	21
CLINICAL LABORATORY										
Medical Technology	52	10	2		55	2				69
Medical or Biological Assisting Technology	5		2	3						5
Cytotechnology	1		1							1
Histologic Technology	1		1							1
DIETARY/NUTRITIONAL										
Food Science/Nutrition	4				4	3		2		9
MEDICAL RECORDS										
Medical Records Librarianship/ Administration	4				4					4
NURSING SERVICES										
Professional Nursing/Nursing Education	48	3	2	4	39	4		1	12	65
Practical Nursing	1		1							1
PHARMACY										
Pharmacology	7					5		7		12
Pharmacology, Human and Animal	1					1		1		2
THERAPEUTIC										
Inhalation/Respiratory	4	1			3	1				5
Occupation	4			1		5				6
Physical	3			1		3				4
Social Work and Helping Service	29	2		2	1	28	5		2	40
Speech	16					14	11		4	43
Art/Music	6					5	1		1	7
RADIOLOGIC										
Radiologic Technology	9	2		7		1	1			11
Radiation Health	1						1		2	3
REHABILITATION										
Mental Health Technology	2					1	1			2
OTHER (Not Elsewhere Reported)										
Assistant to the Primary Care Physician	3	2		1						3
Medical Assisting and Medical Office Assisting	2	1			1					2
ENVIRONMENTAL										
Environmental Education	10				3	2			9	14
Environmental and Sanitary Engineering	3				2	3		1		6
Ecology	3				2	2		2		6

*Degree/Certificate Code Abbreviations:

EX-Exchange
C-Certificate
A-Associate
B-Baccalaureate
M -Masters
FP-First Professional
D -Doctorate
TC-Teacher Education Certificate

[a]"Program Offerings in Pennsylvania Colleges and Universities, Unpublished data, Pennsylvania Department of Education, Harrisburg, Pa., 1976.

Table 3 was compiled from a survey of Pennsylvania colleges and universities offering health-related programs. Briefly, they were asked to indicate the number of graduates for each program from 1969-1973, the number of students enrolled in these programs in 1973 and the number of projected graduates for each year from 1974 through 1978. Of the 98 questionnaires mailed to colleges and universities known to have health occupation programs, 73 were completed and returned.[3]

According to Table 3, most of the health programs show a growth trend in the average number of graduates each year. It should be remembered that the projected number of graduates is based on institutional estimates. It is assumed here that these estimates are based on trends, observations and personal judgments made by institution officials.

The summary table appearing below reflects some graduation trends based on the number of projected graduates, by program, to 1978. These involve baccalaureate degree awards only:

Program	Total Graduates 1969-1973	Total Projected Graduates 1974-1978	Per Cent Change
Dental Hygiene	105	265	152
Medical Technologist	565	1,630	188
Nursing, Registered	4,140	7,285	76
Dietetics	115	205	78
Speech/Hearing Correction	790	1,420	80
Mental Health	95	410	332

At the baccalaureate degree level, the programs listed above show that higher education institutions will generally tend to increase enrollments in these specific programs. Certain other programs, however, may remain relatively stable or may increase less dramatically in terms of student output. For example, cytotechnology and histologic technology programs averaged five and four graduates, respectively, each year from 1969 through 1973. The corresponding average annual number of graduates during the five years 1974-1978 will be, according to the reporting institutions, eight and five, respectively.

Table 3 also contains data relating to the number of reporting institutions, total student capacity and enrollments within each of the health-related programs in 1973. It can be seen that women dominate Medical Technology, Registered Nursing, Social Work, and Speech/Hearing and Related programs; Pharmacy and Veterinary Medicine programs, however, are highly male-dominated. Table 3 findings, relative to sex, may be summarized as follows:

---

3 "Survey of Allied Health and Health-Related Programs Offered at Institutions of Higher Education in Pennsylvania," Pennsylvania Department of Education, Bureau of Information Systems, Harrisburg, Pa., 1974.

Table 3

Health and Health-Related Programs Offered at Pennsylvania Colleges and Universities
(Includes Only Those Institutions Responding to Survey Questionnaire)[a]

Programs	Number of Institutions Reporting (Anticipated Degree/ Certificate Offerings*)	Total Student Capacity	1973 Enrollment PT M	1973 Enrollment PT W	1973 Enrollment FT M	1973 Enrollment FT W	Annual Graduates 1969-1973	Projected Annual Graduates 1974-1978	Per Cent Change 1969-1973 1974-1978
DENTAL SERVICES									
Dental Assistants	2 C or A	74	0	41	0	0	20	46	130
Dental Hygiene	7 B	383	0	59	0	12	21	53	152
CLINICAL LABORATORY SERVICES									
Laboratory Assistant Technologist/Technician	9 B	247	19	138	2	3	52	179	244
Cytotechnology	1 C	10	0	7	0	0	3	8	60
Histologic Technologist	1 C	5	0	4	0	0	4	3	25
Medical Technologist or Medical Laboratory Technologist	33 B 1 A 1 M	1,658 15 320	327 0 83	1,051 15 234	16 0 0	42 0 0	113 0 36	324 15 88	188 144
DIETARY SERVICES									
Dietetics	3 B	50	1	66	1	1	23	28	22
Nutrition and Food	4 B	146	3	107	3	45	33	41	24
MEDICAL RECORD SERVICES									
Medical Record Librarian	1 B	50	3	50	0	0	0	14	
Medical Record Technician	1 B	24	1	29	0	30	3	14	367
NURSING SERVICES									
Nursing, Registered	34 B 3 M	4,803 225	137 44	3,480 990	14 18	632 100	828 179	1,457 286	76 60
Nursing Education	3 B	300	0	37	2	343	55	105	91
School Nursing	7 B	100	0	38	0	118	71	61	14
Nursing, Associate Degree	2 A	226	7	216	0	29	92	185	102
Nursing, Practical	8 C or A	512	12	434	0	0	24	374	1,458
PHARMACY									
Pharmacy	2 B, M or D	1,426	882 B 41 M or D	382 B 13 M or D	35 B 28 M or D	7 B 6 M or D	41 121	263 24	541 404
Pharmacology, Human and Animal	4 M or D	70	31	7	10	1	8	20	150
Pharmaceutical Chemistry	2 M or D	21	10	4	5	1	4	5	25
Pharmacy-Related	1 B	50	---------Not Reported---------				0	2	

[a] Survey of Allied Health and Health-Related Programs Offered at Institutions of Higher Education in Pennsylvania, Pennsylvania Department of Education, Harrisburg, Pennsylvania, 1974.

*Degree/Certificate and other abbreviations: A--Associate C--Certificate M --Masters
B--Baccalaureate D--Doctorate N/R--Not Reported

Table 3 (Cont'd)

Programs	Number of Institutions Reporting (Anticipated Degree/ Certificate Offerings*)	Total Student Capacity	1973 Enrollment FT M	1973 Enrollment FT W	1973 Enrollment PT M	1973 Enrollment PT W	Annual Graduates 1969-1973	Projected Annual Graduates 1974-1978	Per Cent Change 1969-1973 1974-1978
THERAPEUTIC SERVICES									
Inhalation Therapy	3 A or B	125	41	37	16	7	3	39	1,200
Occupation Therapy	1 B	100	6	79	0	0	10	21	110
Occupation Therapy Assistant	3 A or B	125	4	74	2	2	46	156	239
Physical Therapy	1 B	160	13	137	0	0	15	35	133
Physical Therapy Sub-Bacc Degree	1 A or C	60	18	46	0	0	69	61	13
Physical Therapy Assistant	1 A or C	100	5	49	0	5	10	31	210
Respiratory Therapy Technology	1 B	----------	Not Reported	----------				8	
	1 A	N/R	1	0	0	0	0	10	
Social Work and Helping Service	12 B, M or D	1,566	436	985	79	64	274	574	109
Speech Pathology/Audiology	2 B, M or D	675	82	550	4	19	133	178	34
Speech/Hearing Correction and Related Programs	7 B	995	150	740	17	45	158	284	80
Art Therapy	1 M	35	2	17	0	13	5	14	180
Music Therapy	2 N/R	15	1	4	0	0	N/R	3	
RADIOLOGIC SERVICES									
Nuclear Medicine Technology	2 A or B	37	3	8	0	1	N/R	15	
Radiologic Technology	4 C, A or B	163	18	126	2	3	35	76	117
Radiation Health	1 N/R	20	2	2	0	0	0	2	
X-Ray Technician	1 C, A or B	----------	Not Reported	----------				10	
REHABILITATION SERVICES									
Mental Retardation Rehabilitation	1 B	50	10	35	8	8	27	41	52
Mental Health Counseling	1 B	60	30	27	5	8	3	17	467
Rehabilitation Counseling	1 M	60	49	12	20	12	22	24	9
OTHER HEALTH PROFESSIONS AND TECHNICAL SERVICES									
Assistant to the Primary Care Physician/Medex	2 A or C	130	46	15	0	0	2	45	2,150
Medical Assistant and Medical Office Assistant	7 A or B	370	2	196	1	11	32	164	413
Medical Secretarial	7 A or B	354	32	198	0	41	63	164	160

Table 3 (Cont'd)

Programs	Number of Institutions Reporting (Anticipated Degree/Certificate Offerings*)	Total Student Capacity	1973 Enrollment FT M	1973 Enrollment FT W	1973 Enrollment PT M	1973 Enrollment PT W	Annual Graduates 1969-1973	Projected Annual Graduates 1974-1978	Per Cent Change 1969-1973 1974-1978
ENVIRONMENTAL									
Air Pollution Control Technology	1 A	50	13	0	0	0	3	6	100
Ecology	1 M	25	14	3	0	0	N/R	5	
Environmental Engineering	1 B	100	24	1	0	0	N/R	13	
Environmental Pollution Control	2 B or M	50	28	16	0	0	3	18	500
Environmental Science	1 B	60	45	15	0	0	1	15	1,400
OTHER HEALTH PROFESSIONS, NEC									
Animal Laboratory (Consolidated Medicine)	1 B	6	3	0	0	0	1	2	100
Animal Laboratory Technician/ Technologist	1 B	75	-----Not Reported-------				0	64	
Anatomy	4 M or D	54	14	8	2	0	4	8	100
Biochemistry	8 B, M or D	365	186	74	26	7	44	80	82
Bioengineering and Biomedical Engineering	1 B, M or D	180	-----Not Reported-------				8	14	75
Biophysics	1 B, M or D	34	57	11	0	0	21	24	14
Cardiovascular Technology	1 A	6	0	3	0	0	1	11	1,000
Clinical Psychology	1 M or D	58	22	18	0	3	5	23	360
Community Health and Preventive Medicine	1 M	8	0	0	3	0	1	2	100
Community Systems Planning and Development	1 M or D	50	16	4	0	0	N/R	11	
Embryology	1 D	N/R	3	1	0	0	N/R	3	
Entomology	1 M or D	30	27	3	0	0	7	7	0
Genetics	3 M or D	35	15	11	1	0	7	8	14
Health Education	2 B	150	73	76	0	0	9	58	544
Health Professions, General	2 B	N/R	894	442	10	13	20	132	560
Human Development and Family Studies	1 M or D	100	37	52	0	0	37	41	11
Individual and Family Studies	1 B	1,000	157	593	0	0	123	266	116
Mental Health Technologist/Technician	4 B	220	32	151	19	61	19	82	332
Microbiology	5 B, M or D	230	108	72	11	13	27	70	159
Operating Room Technician	1 B	25	0	24	0	0	N/R	20	
Optical Technology	1 A	50	----------Not Reported----------					4	
Pathology, Human and Animal	1 B	10	3	0	0	1	1	1	0
Physiology, Human and Animal	5 M or D	122	69	20	15	0	19	30	58
Surgical Technology	1 B	12	2	10	0	0	8	10	25
Veterinary Medicine	1 D	375	252	118	0	0	72	97	35
Veterinary Science	1 M or D	15	11	2	0	0	2	3	50

Program	Baccalaureate or Higher Degree Enrollments (and Per Cent of Enrollments)							
	Full-Time				Part-Time			
	Men	(Per Cent)	Women	(Per Cent)	Men	(Per Cent)	Women	(Per Cent)
Medical Technology	327	(24)	1,051	(76)	16	(27)	42	(73)
Nursing, Registered	137	(4)	3,480	(96)	14	(2)	632	(98)
Social Work	436	(31)	985	(69)	79	(55)	64	(45)
Speech/Hearing and Related	150	(17)	740	(83)	17	(27)	45	(73)
Pharmacy	882	(70)	382	(30)	35	(83)	7	(17)
Veterinary Medicine	252	(68)	118	(32)	0	0	0	0

The predominance of women in the health programs may further be illustrated by a review of the 1973 enrollments under the major service headings. Only full-time enrollments at all degree levels are included below:

Programs by Service	Enrollments (and Per Cent)			
	Men	Per Cent	Women	Per Cent
Dental Services	1	(.6)	175	(99)
Clinical Laboratory Services	429	(23)	1,449	(77)
Dietary Services	12	(6)	185	(94)
Medical Records Service	4	(5)	79	(95)
Nursing Services	200	(4)	5,278	(96)
Pharmacy (and Related Service)	964	(70)	406	(30)
Therapeutic Services	764	(22)	2,718	(78)
Radiologic Services	23	(14)	136	(86)
Rehabilitation Service	89	(55)	74	(45)
Assistant to Physician/Medical Assistant	46	(75)	15	(25)
Medical Office Assistant	2	(1)	196	(99)
Medical Secretarial	32	(14)	198	(86)
Environmental Service	124	(78)	35	(22)
Other Health Professions Not Indicated Above	1,981	(54)	1,693	(46)

B. Potential Supply of Health Occupations Personnel Resulting from Programs Anticipated by Higher Education Institutions

College and university responses to their perception of health program needs are reflected in Table 4. This table lists programs that were under development or under consideration for development at the time of the survey (1974). Predictably, the anticipated enrollments for the total number of 71 new programs were higher for women (1,252 full-time students) than men (513 full-time students).

Table 4

Health and Health-Related Programs Developed or under Consideration for Development in Pennsylvania, 1973-1980[a]

Program	Number of Institutions Reporting	Proposed Degree*	Anticipated Enrollment Full-Time M	Full-Time W	Part-Time M	Part-Time W	Estimated Number of Graduates 1975-1980 1975	1976	1977	1978	1979	1980
DENTAL SERVICES												
Dental Assistants	1	A	5	25	0	0	20	20	20	20	20	20
Dental Hygiene	2	A	2	33	0	0	0	15	30	30	30	30
CLINICAL LABORATORY SERVICES												
Laboratory Assistant/ Technology/Technician	3	A	16	48	0	15	18	28	28	33	48	64
Cytotechnology	1	M/R	2	4	0	0	2	2	2	2	2	2
Medical Technology or Medical Laboratory Technology	1	M	0	0	6	4	----------Not Reported----------					
Clinical Chemistry	1	B	2	2	0	0	0	0	0	0	0	3
Clinical Microbiology	1	B	2	2	0	0	0	0	0	0	0	3
DIETARY SERVICES												
Dietetics	1	B	-----Not Reported-------				0	6	12	18	18	18
MEDICAL RECORD SERVICES												
Medical Record Librarian	1	B	0	5	0	2	0	0	5	5	5	5
Medical Record Librarian	1	A	----------Not Reported----------									
Medical Record Assistant	1	C	2	22	-	-	18	18	18	18	18	18
NURSING SERVICES												
Nursing, Registered	6	B	32	285	1	40	5	10	15	60	150	190
Nursing Education	1	A	0	30	0	0	0	0	25	30	40	50
Nursing Associate Degree	2	A	0	70	0	0	15	45	45	60	45	45
Nurse, Anesthesia	1	B	2	6	0	8	0	0	8	8	8	8
THERAPEUTIC SERVICES												
Inhalation Therapy	1	B	2	2	0	0	0	0	0	0	0	3
Inhalation Therapy	1	A	15	15	10	10	10	15	20	25	25	25
Occupation Therapy	1	B	------Not Reported-------				0	6	12	18	18	18
Occupation Therapy Assistant	1	A	15	10	0	0	0	0	0	25	25	25
Physical Therapy	1	B	------Not Reported-------				0	6	12	18	18	18
Physical Therapy Assistant	1	A	15	10	0	0	0	0	0	25	25	25
Respiratory Therapy Technology	1	A	5	10	3	2	12	15	15	15	N/R	N/R
Social Work and Helping Service	2	B	10	25	0	0	0	0	0	10	25	45
Speech Pathology/Audiology	1	B	10	25	0	0	0	0	10	15	20	20
Art Therapy	1	B	0	6	0	4	0	4	6	8	10	15
Music Therapy	2	B	0	10	0	0	0	0	8	11	13	15
Respiratory Therapy Technician	1	A	5	10	3	2	12	15	15	15	N/R	N/R
Speech Aide	1	A	15	30	0	0	0	0	0	0	40	40
Speech Science Specialist	1	B	5	10	0	0	0	0	0	5	5	10

[a]Survey of Allied Health and Health-Related Programs Offered at Institutions of Higher Education in Pennsylvania, Pennsylvania Department of Education, Harrisburg, Pa., 1974.

*Degree/Certificate or other abbreviations: A--Associate B--Baccalaureate C--Certificate D--Doctorate M --Masters N/R--Not Reported

Table 4 (Cont'd)

Program	Number of Institutions Reporting	Proposed Degree*	Anticipated Enrollment Full-Time M	Full-Time W	Part-Time M	Part-Time W	Estimated Number of Graduates 1975-1980 1975	1976	1977	1978	1979	1980
RADIOLOGIC SERVICES												
Nuclear Medicine Technology	1	B	2	14	0	0	1	4	6	8	10	12
Radiologic/Radiation Technology	1	B	10	5	10	5	5	10	15	15	15	15
Radiologic/Radiation Technology	3	A	14	34	0	0	18	18	40	40	40	40
OTHER HEALTH PROFESSIONAL AND TECHNICAL SERVICES												
Assistant to the Primary Care Physician/Medex	1	B	8	0	0	0	0	0	0	0	8	16
Medical Assistant and	2	A	1	44	0	20	0	15	15	40	40	40
Medical Office Assistant	1	C	2	28	0	0	25	25	25	25	25	25
Medical Secretarial	3	A	40	80	20	20	40	50	60	70	80	90
ENVIRONMENTAL SERVICES												
Air Pollution Control Technology/Techniques	1	B	4	2	0	0	0	0	0	0	0	6
Environmental Health	1	B	12	12	5	5	0	0	0	2[illegible]	25	30
OTHER HEALTH PROFESSIONS, NEC												
Cardiovascular Technology	1	A	10	5	0	0	0	12	12	12	12	12
Health Education	1	B	------Not Reported------				0	0	0	25	25	25
Health Education	1	M	------Not Reported------				0	0	50	50	50	50
Optical Technology	1	A	7	8	7	8	0	0	0	10	15	15
Allied Health, General	1	B	4	4	0	0	0	2	4	6	6	6
Arts for Human Services	1	B	20	20	5	5	5	10	15	20	20	20
Biological Chemistry Neurosciences	1	D	5	5	0	0	0	0	0	0	0	6
Comparative Medicine/ Comparative Pathology	1	D	1	1	----------Not Reported----------							
Health Care Administrators and Hospital Administrators	2	B	35	20	50	25	-----Not Reported---------				10	15
Health Science	1	B	------Not Reported-------				0	0	0	15	15	15
Health Science	1	M	------Not Reported-------				0	0	0	6	6	6
Human Services	1	B	----------Not Reported----------									
Life Management	1	B	5	10	1	2	0	10	20	25	30	40
Medical Equipment Technology	1	A	8	7	0	0	10	20	25	25	30	30
Mental Health	1	A	20	20	10	10	0	0	15	20	25	25
Mental Health	1	M	5	5	20	20	0	0	0	2	4	6
Occupational Safety and Health Education	1	A	----------Not Reported----------									
Optometric Technician	1	A	8	16	0	0	0	0	22	22	22	22
Podiatric Assistant	1	A	0	50	0	0	0	30	35	40	45	50
Public Health	1	B	60	65	0	0	0	3	15	15	30	30

In most instances, the reporting institutions show a progressive rise in the estimated number of graduates for each year from 1975 to 1980. It would appear, from the composite number of all projected graduates below, that the rate of growth will slow somewhat after 1978.

Estimated Number of Graduates, 1975-1980, in Newly Developed or Anticipated Programs

Year	Number of Graduates	Change from Previous Year
1975	221	0
1976	429	208
1977	695	266
1978	1,010	315
1979	1,231	221
1980	1,397	166

Despite the already large number of nursing service programs, higher education institutions are, according to their own projections, implementing or planning to develop new nursing programs.

C. College-Bound Seniors Aspiring to Health Occupation Programs[4]

According to the College Entrance Examination Board, a large percentage of college-bound seniors in the United States and in Pennsylvania selected the health/medicine professions as their first choice of study in 1975-76.

Nearly one million college-bound students participated in the College Board admission testing program in 1975-76. Of these, about 75 per cent signified their first-choice intended areas of study, which covered more than 200 specific fields grouped under 29 broad curriculum areas.

The top six broadly defined curriculum areas chosen by seniors responding to the student descriptive questionnaire included, in order of program preference, health/medicine, business/commerce, education, engineering, social sciences and biological sciences. Pennsylvania's college-bound seniors closely paralleled the national first-choice preferences. The six most preferred programs for the United States and Pennsylvania are summarized as follows:

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4 College Bound Seniors, 1975-76, National and Pennsylvania Reports, College Entrance Examination Board, Princeton, N.J., 1976.

Intended Program	Per Cent National 371,908 Male	404,157 Female	776,065 Total	Per Cent Pennsylvania 36,036 Male	39,491 Female	75,527 Total
Health Medicine	11.6	23.7	17.9	10.3	28.2	19.7
Business/Commerce	14.0	11.3	12.6	15.5	10.4	12.9
Education	4.2	12.9	8.7	4.9	14.0	9.7
Engineering	15.9	1.4	8.4	16.7	1.8	8.9
Social Sciences	6.9	6.8	6.8	7.0	6.7	6.9
Biological Sciences	5.2	4.4	4.8	4.8	3.9	4.4

Table 5 shows first choice health/medicine program preferences specified by high school seniors at the national level. Table 6 shows similar data for Pennsylvania seniors. In both instances the 1974-75 findings are compared with those for 1975-76. A summary of the two-year data appears below:

	Total Health/Medicine Professions 1974-75	1975-76	Difference	Per Cent Increase
U.S.	98,950	139,022	40,072	40.5
Pennsylvania	8,622	14,851	6,229	72.2

Table 6A shows that Pennsylvania has a disproportionately low number of seniors aspiring to premedicine. Compared to national data, an unusually high proportion of the Commonwealth's seniors specified registered nursing as a first choice study preference.

Table 5

First-Choice Preference by Programs Completely Related to the Health Professions, 1974-75 and 1975-76 College-Bound Seniors, United States[a]

Health/Medical Professions	1974-75	1975-76	Difference	Per Cent Difference
Pre-medicine	25,212	37,842	12,630	50.0
Nursing, Registered	24,341	35,340	10,999	45.2
Physical Therapy	6,443	10,695	4,252	66.0
Medical Technology	4,974	7,074	2,100	42.2
Dental Hygiene	4,503	5,965	1,462	32.5
Pharmacy	4,181	6,126	1,945	46.5
Pre-dentistry	3,827	6,032	2,205	57.6
Radiology/X-Ray	2,586	4,002	1,416	54.8
Laboratory Technology	2,219	3,360	1,141	51.4
Dental Technology	1,699	2,286	587	34.5
Nursing, Practical	1,449	2,116	667	46.0
Medical Assisting	1,360	2,053	693	51.0
Occupation Therapy	1,358	2,149	791	58.2
Dental Assisting	1,317	1,733	416	31.6
Optometry	1,019	1,640	621	61.0
Medical Records Librarian	289	412	123	42.6
Health and Safety	120	209	89	74.2
Other, Unspecified	12,053	9,988	-2,065	-17.1
TOTAL	98,950	139,022	40,072	40.5

[a]College Bound Seniors, 1974-75 and 1975-76, National Report, College Entrance Examination Board, Princeton, N.J., 1975 and 1976.

Table 6

First-Choice Preference by Programs Completely Related to the Health Professions, 1974-75 and 1975-76 College-Bound Seniors, Pennsylvania[a]

Health/Medical Professions	1974-75	1975-76	Difference	Per Cent Difference
Pre-medicine	1,643	3,151	1,508	91.8
Nursing, Registered	2,376	4,995	2,619	110.2
Physical Therapy	539	1,121	582	108.0
Medical Technology	567	940	373	65.8
Dental Hygiene	305	482	177	58.0
Pharmacy	368	602	234	63.6
Pre-Dentistry	269	484	215	79.9
Radiology/X-Ray	227	540	313	137.9
Laboratory Technology	227	421	194	85.5
Dental Technology	67	144	77	114.9
Nursing, Practical	157	311	154	98.0
Medical Assisting	143	282	139	97.2
Occupational Therapy	102	213	111	108.8
Dental Assisting	83	164	81	97.6
Optometry	81	176	95	117.3
Medical Records Librarian	21	56	35	166.6
Health and Safety	8	23	15	187.5
Other, Unspecified	1,439	746	-693	-48.2
TOTAL	8,622	14,851	6,229	72.2

[a]Pennsylvania College Bound Seniors, 1974-75 and 1975-76, Pennsylvania Report, College Entrance Examination Board, Princeton, N.J., 1975 and 1976.

Table 6A

United States and Pennsylvania Comparison of First Choice Preference by Programs Completely Related to the Health Professions 1975-76 College-Bound Seniors

First-Choice Study Preference	1975-76 Seniors PA	1975-76 Seniors U.S.	Per Cent PA	Per Cent U.S.	Per Cent Difference PA & U.S.
Pre-medicine	3,151	37,842	21.2	27.2	-6.0
Nursing, Registered	4,995	35,340	33.6	25.4	8.2
Physical Therapy	1,121	10,695	7.5	7.7	-0.2
Medical Technology	940	7,074	6.3	5.1	1.2
Dental Hygiene	482	5,965	3.2	4.3	-1.1
Pharmacy	602	6,126	4.1	4.4	-0.3
Pre-dentistry	484	6,032	3.3	4.3	-1.0
Radiology/X-Ray	540	4,002	3.6	2.9	0.7
Lab Technology	421	3,360	2.8	2.4	0.4
Dental Technology	144	2,286	1.0	1.6	-0.6
Nursing, Practical	311	2,116	2.1	1.5	0.6
Medical Assisting	282	2,053	1.9	1.5	0.4
Occupational Therapy	213	2,149	1.4	1.5	-0.1
Dental Assisting	164	1,833	1.1	1.2	-0.1
Optometry	176	1,640	1.2	1.2	0.0
Medical Records Librarian	56	412	0.4	0.3	0.1
Health and Safety	23	209	0.2	0.2	0.0
Other/Unspecified	746	9,988	5.0	7.2	-2.2
Number and Per Cent	14,851	139,022	99.9*	99.9*	

*Difference from 100 per cent due to rounding.

CHAPTER IV

OTHER SOURCES OF SUPPLY OF HEALTH OCCUPATION PERSONNEL

A. Hospital-Based Programs

Pennsylvania's hospital-based health-related programs are valuable sources of manpower supply in a variety of occupations. The available data concerning hospital-based programs approved by the American Medical Association indicate that the emphasis is on allied medical education offerings and nursing services. Hospital-based nursing programs will, however, be discussed separately in a later section of this report.

Figure 1 shows 198 health-related program offerings, most of which are conducted in a hospital-type setting. Thirty-eight counties offer hospital-type training programs in the occupational areas appearing here. Nearly one-half of these programs are conducted in two of the most densely populated counties, Allegheny (39 programs) and Philadelphia (51 programs). Exclusive of the nursing services, 29 counties do not appear to have approved/accredited programs as indicated in Figure 1.[5]

Appendix C contains more detailed data relating to these offerings. In reviewing Figure 1 and the appendix, two factors should be considered:

1. These programs are supported by the hospitals with the general intent of meeting individual hospital manpower needs.

2. The 50 college- or university-sponsored programs appearing in Figure 1 and the appendix are collaborative efforts between certain hospitals and the postsecondary institutions involved.

Obviously, any shift from hospital-based programs to higher education settings will still require considerable involvement by teaching hospitals in order to provide a clinical experience for the student. Furthermore, the hospital will limit itself to its own needs unless funds are available from other sources. Under current practices, the institutions may find it difficult to obtain a clinical setting for students due to the financial constraints the hospitals and the institutions are now facing as well as a possible dearth of hospitals able to meet accreditation standards for teaching hospitals.

Figure 2 is an extension of Figure 1 for hospital-based programs.[6] Appendix D provides additional details relating to specific location, institutional identification and the accreditation status of each program listed in Figure 2.

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5 American Hospital Association Guide to the Health Care Field, 1975 Edition, Chicago, Ill.

6 Health Occupation Training Programs Administered by Hospitals, U.S. Department of Health, Education and Welfare, Bureau of Health Resources Development, Washington, D.C., December 1974.

Figure 1

Selected Education Programs in the Hospital and Health Fields (AMA Approved/Accredited) in Pennsylvania, 1974[a]

County	Blood Bank Technology	Cert. Lab. Assistant	Cytotechnology	Dental Hygiene	Dietetics	Hospital Administration	Library Science	Medical Assistant	Medical Record Admin.	Medical Record Technic.	Medical Technology	Nuclear Medicine Techno.	Occupation Therapy	Occup. Therapy Asst.	Physical Therapy	Podiatry	Primary Care Phys. Asst.	Public Health	Radiation Therapy Tech.	Radiologic Technology	Respiratory Therapy	Social Work	Speech Pathology & Audiology	TOTAL
Allegheny	2	3	2	1	1	1	1	1	1	1	5				1			1	2	11	3	1	1	39
Armstrong																				1				1
Beaver																				3				3
Bedford		1																						1
Berks											2									3				5
Blair		1									1									2				4
Bradford											1									1	1			3
Bucks											1													1
Cambria		2												1						1				4
Centre					1																		1	2
Chester		1																		1				2
Clearfield																				2				2
Crawford		1																						1
Cumberland		1																		2				3
Dauphin		1									2	2					1			3				9
Delaware																				2	1			3
Erie		1									1									2				4
Franklin		1																						1
Greene																				1				1
Lackawanna		1									1									3		1		6
Lancaster		1									2									2	1			6
Lawrence																				1				1
Lehigh											2			1						2				5
Luzerne		1									1									4				6
Lycoming											2									1				3
McKean																				1				1
Mercer																				1				1
Monroe		1																						1
Montgomery		1									2									6		1		10
Montour			1																	1				2
Northampton				1							1									1				3
Philadelphia		3	5	2		2	1		1	1	6		2		2	1	1		1	19	1	2	1	51
Schuylkill		1																		1				2
Somerset																				1				1
Venango																				1				1
Washington											1									1				2
Westmoreland		1									1									1				3
York									1		1									2				4
TOTAL	2	23	8	4	2	3	2	1	3	2	33	2	2	2	3	1	2	1	3	84	7	5	3	198

[a] American Hospital Association Guide to the Health Care Field, 1975 Editica, Chicago, Ill.

Figure 2

Selected Health Occupations Training Programs Administered by Hospitals in Pennsylvania Counties, 1974[a]

County	Cardiopulmonary Technician	Cytotechnology	Dental Technician	Dialysis Technician	Dietitian	Dietitian/Nutritionist	Electrocardiograph Technician	Electroencephalographic Technician	Histological Technician	Medical Photography	Mental Health Associate/Technician	Mental Health Technologist	Nuclear Medicine Technologist/Technician	Physical Therapy Assistant Aide	Radiation Therapy Technologist/Technician	Radiologic Technologist	Rehabilitation Therapist	Rehabilitation Therapy Assistant/Aide	Respiratory Therapist	Respiratory Therapy Technician	Speech/Hearing Therapy Aide	TOTAL
Allegheny								2		2			2		1					1		8
Bradford									1													1
Dauphin									1													1
Delaware													1		1	1						3
Erie					1																	1
Lycoming	1																		1			2
Montgomery	1							1						1								3
Montour						1			1													2
Philadelphia		1		1	1		3	1	5		1	1							2	1		17
Union			1																			1
Warren																			1			1
Westmoreland							1										1	1			1	4
York								1														1
TOTAL	2	1	1	1	2	1	4	5	8	2	1	1	3	1	2	1	1	1	4	2	1	45

[a]Health Occupations Training Programs Administered by Hospitals, U.S. Department of Health, Education and Welfare, Bureau of Health Resources Development, Washington, D.C., December 1974.

Figure 2 may be considered especially important because it identifies new or special programs, not elsewhere considered, such as cardiopulmonary technician and dialysis technician. The former deals with providing medical specialists with data for use in diagnosing heart, vascular and lung diseases. The latter involves methods and techniques used to provide treatment for patients with kidney disorders. Both occupations require extensive use of special machinery and equipment in job performance. The American Hospital Association suggests that the minimum education for entry into these occupations be at least graduation from an accredited school of nursing. It is presumed, then, that admission to these training programs is contingent on attainment of professional nursing status. There are no college level courses or program offerings for cardiopulmonary or dialysis technicians in Pennsylvania.

Both the electrocardiograph (EKG) and electroencephalograph (EEG) programs are noteworthy because they are listed among the 24 AMA-approved, but emerging, allied health programs.[7] EKG technicians, through use of specialized machinery, record variations in action of the heart muscles. EEG technicians/technologists operate machinery used to record the electrical activity of the brain. The essentials for the EKG program have not yet been developed, but 6 to 12 months of postsecondary training are required for qualification to EKG technician/technologist.

B. Allied Medical Education: AMA-Accredited Programs

The terms "allied health" or "paramedical" can be a source of confusion and misunderstanding. Both terms have been applied loosely to health programs and occupations involving nonphysician-type service. In this section of the report, allied health is intended to mean the 24 AMA-accredited programs designed to educate and train persons for occupational competencies in specific fields.[8] However, in succeeding portion of this report, the term "health-related" programs or occupations will be used to denote other health supportive professional or occupational fields.

Table 7 shows the number of accredited allied health programs in Pennsylvania compared with the number in the United States. Most of the programs offered in Pennsylvania are sponsored by hospitals, medical centers or medical colleges, with a few conducted by four-year colleges and vocational schools. Appendix E provides more detailed information relating to location, entrance requirements for admission to each program, certificate or degree awarded and the like. Pennsylvania offers one or more allied medical education programs in 16 classifications.

In terms of percentage of the total number of allied health programs in the Commonwealth compared to the number of programs nationwide, Pennsylvania is high in certain areas and low in others, as indicated on the page following Table 7.

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7 Allied Medical Education Directory, The Council on Medical Education of the American Medical Association, Chicago, Ill., 1974.

8 Ibid.

Table 7

Number of AMA-Accredited Allied Medical Education Programs in Pennsylvania and the United States, 1974[a]

Program	Number Pennsylvania	Number U.S.
Assistant to the Primary Care Physician	2	43
Cytotechnology	8	181
Electroencephalographic Technician	0	0
Electroencephalographic Technologist	0	0
Histologic Technician	2	25
Laboratory Assistant	23	104
Medical Assistant	1	73
Medical Assistant in Pediatrics	0	1
Medical Laboratory Technician	0	14
Medical Record Administrator	2	33
Medical Record Technician	2	40
Medical Technologist	34	715
Nuclear Medicine Technician	1	17
Nuclear Medicine Technologist	2	47
Occupational Therapist	2	41
Operating Room Technician	0	2
Orthopaedic Physician's Assistant	0	8
Physical Therapist	3	66
Radiation Therapy Technologist	3	39
Radiologic Technologist	84	1,010
Respiratory Therapist	6	126
Respiratory Therapy Technician	0	5
Specialist in Blood Bank Technology	2	59
Urologic Physician's Assistant	0	1
TOTAL	177	2,650

[a]Allied Medical Education Directory, The Council on Medical Education of the American Medical Association Chicago, Ill., 1974, p. 10.

The following analysis of data from Table 7 indicates that Pennsylvania, relative to the nation, has a lower percentage of AMA-approved allied medical education programs in many areas, that it lacks programs in eight of the 24 fields listed and that it has a higher percentage of programs for laboratory assistants and radiologic technologist. When combined, these two areas represent 60.4 per cent of the total number of allied medical education programs offered in Pennsylvania.

	No. in Pa	Per Cent of Program in Pa.	No. in U.S.	Per Cent of Program in U.S.	Per Cent Difference Between Pa. and U.S.
Assistant to the Primary Care Physician	2	1.1	43	1.6	- 0.5
Cytotechnology	8	4.5	181	6.8	- 2.3
Electrocardiographic Technician	0	0.0	0	0.0	0.0
Electroencephalographic Technologist	0	0.0	0	0.0	0.0
Histologic Technician	2	1.1	25	0.9	0.2
Laboratory Assistant	23	13.0	104	4.0	9.0
Medical Assistant	1	0.6	73	2.8	- 2.2
Medical Assistant in Pediatrics	0	0.0	1	0.0	0.0
Medical Laboratory Technician	0	0.0	14	0.5	- 0.5
Medical Record Administrator	2	1.1	33	1.2	- 0.1
Medical Record Technician	2	1.1	40	1.5	- 0.4
Medical Technologist	34	19.2	715	27.0	- 7.8
Nuclear Medicine Technician	1	0.6	17	0.6	0.0
Nuclear Medicine Technologist	2	1.1	47	1.7	- 0.6
Occupational Therapist	2	1.1	41	1.5	- 0.4
Operating Room Technician	0	0.0	2	0.0	0.0
Orthopaedic Physician Assistant	0	0.0	8	0.3	- 0.3
Physicial Therapist	3	1.7	66	2.5	- 0.8
Radiation Therapy Technologist	3	1.7	39	1.5	0.2
Radiologic Technologist	84	47.4	1,010	38.1	9.3
Respiratory Therapist	6	3.4	126	4.8	- 1.4
Respiratory Therapy Technologist	0	0.0	5	0.2	- 0.2
Specialist in Blood Bank Technology	2	1.1	59	2.2	- 1.1
Urologic Physician Assistant	0	0.0	1	0.0	0.0
TOTAL	177	99.8*	2,650	99.7*	

*Difference from 100 per cent due to rounding

In contrast, Pennsylvania has fewer programs than the nation, proportionately, in the areas of cytotechnology, medical assistant, medical technology, nuclear medical technologist, physical therapy, respiratory therapy and blood bank technology. Some of these are, of course, newer areas of specialization and may become more commonplace in Pennsylvania in the future.

	Programs		Per Cent		
	PA.	U.S.			
HIGH Number:	177	2,650	Pa.	U.S.	Difference
Laboratory Assistant	23	104	13.0	4.0	+ 9.0
Radiologic Technologist	84	1,010	47.4	38.1	+ 9.3
LOW					
Cytotechnology	8	181	4.5	6.8	- 2.3
Medical Assistant	1	73	0.6	2.8	- 2.2
Medical Technologist	34	715	19.2	27.0	- 7.8
Respiratory Therapist	6	126	3.4	4.8	- 1.4
Specialist in Blood Bank Technology	2	59	1.1	2.2	- 1.1

CHAPTER V

HOSPITALS

A. Hospitals as a Source of Demand

Hospitals are the most complex establishments now providing health care delivery services. Within their facilities can be found intricate scientific and specialized equipment requiring highly trained and skilled personnel educated to assure their efficient operation. The focal point in the delivery of medical care in a hospital setting is the physician. Equally important is the medical staff, including nurses, laboratory technologists and technicians, therapists and other personnel who support the physician in patient care. Because of their complicated operations and wide range of services, hospitals generally employ sizeable numbers and a variety of allied health and health-related occupation personnel and are, therefore, a major source of demand for individuals trained in health care delivery and related services.

In a previous section it was emphasized that hospital schools of education are important sources of manpower supply. The medical, nursing and other occupations frequently rely on the hospital for training programs beyond those necessary for employe orientation, improvement of job skills and in-service development of employe capabilities. A great number of hospitals must depend heavily on higher education and other sources of supply to fill their demands. They are especially dependent on personnel possessing skills that require special training and aptitudes to meet the objective and purpose of the hospital.

Table 8 indicates the Commonwealth's broad range of hospitals, both federal and nonfederal. Since this table was compiled, however, two of the tuberculosis and respiratory hospitals have discontinued operation in the state. Table 8 also shows the number of full-time equivalent personnel employed in Pennsylvania hospitals as of 1974. It should be noted here that registered nurses and licensed practical nurses totalled about 45,000, or one-fourth of all personnel employed in the hospitals.

Appendix F contains more detailed and updated (1975) statistics concerning the 283 general hospitals in Pennsylvania, showing the number located in each county by bed size, total number of beds and bassinets. General hospitals are especially important because of their direct community health delivery service and because these facilities employ a significantly large number of diverse health service personnel in the state.

B. Hospital Employment in Select Occupations

A survey of 321 hospitals in Pennsylvania was conducted by the Pennsylvania Department of Education during the late summer and early fall of 1974 to determine the number of personnel employed in allied health and health-related occupations. One hundred and fourteen usable survey returns were received from the 321 hospitals, representing a 36 per cent response.[9]

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9 "Survey of Hospital Employes in Health-Related Occupations in Pennsylvania," Bureau of Information Systems, Pennsylvania Department of Education, Harrisburg, Pa., 1974.

Table 8

Federal and Nonfederal Hospitals in Pennsylvania, by Type, Indicating Full-Time Equivalent Employes, 1974[a]

	Hospitals**	Full-Time Equivalent Personnel*				
		MD	RN	LPN	Other	Total
Federal Hospitals						
Psychiatric	2	55	253	82	1,723	2,113
General and Other Special	10	453	1,033	259	5,516	7,261
Total Federal	12	508	1,286	341	7,239	9,374
Nonfederal Hospitals						
Psychiatric	41	592	1,839	1,005	21,372	24,808
(Hospitals)	(35)	(531)	(1,616)	(702)	(15,913)	(18,762)
(Mental Retardation Institutions)	(6)	(61)	(223)	(303)	(5,459)	(6,046)
Tuberculosis and Other Respiratory	2	5	22	25	275	327
Long-Term General and Other Special	20	172	700	665	6,759	8,296
Short-Term General and Special	246	2,359	28,338	11,032	92,618	134,347
(Hospital Units of Institutions)	(7)	(33)	(50)	(0)	(84)	(167)
(Community Hospitals)	(239)	(2,326)	(28,288)	(11,032)	(92,534)	(134,180)
Total Nonfederal Hospitals	309	3,128	30,899	12,727	121,024	167,778
TOTAL	321	3,636	32,185	13,068	128,263	177,152

[a] "1974 Annual Survey for Pennsylvania," Unpublished data, American Hospital Association, Chicago, Ill., July 1975.

*Abbreviations: MD - Medical Doctor
RN - Registered Nurse
LPN - Licensed Practical Nurse

**Figures appearing in parentheses are subtotals.

The survey requested hospital officials to indicate the number of full-time and part-time employes on the payroll as of July 1, 1974. A detailed listing of occupations normally found in hospital settings, with brief descriptions of these occupations, accompanied each form to assure that misunderstandings would be minimized. Also, hospital officials were asked to show the number of additional personnel they would need, by selected occupational categories, for each calendar year from 1975 through 1980. In most instances the latter data were not provided. Two reasonable assumptions can be made concerning reluctance to make projections. First, hospitals appear to be experiencing more stable patterns of manpower increases; therefore, projections, at best, would be arrived at by extrapolation rather than sound planning. Second, pending federal legislation affecting health care facilities, systems, policies and education may have contributed to this reluctance.

Table 9 represents the outcome of the survey in terms of estimated employment for all hospitals with regard to selected occupations as of July 1, 1974. These estimates were computed on the basis of return percentages applied to known employment totals for all 321 hospitals. The methodology is explained in a footnote appearing at the end of Table 10.

C. Hospital Employment in Select Health Occupations, by Bed Size

The data appearing in Table 10 show estimated full-time and part-time employment, in each of the surveyed occupation categories, by hospital bed-size groupings based on the survey findings.

Overall, an estimated 100,207 persons were employed in the 72 listed occupations. Slightly more than 8 out of 10 persons in the select occupations worked full-time. A breakdown by hospital bed size and employment percentages, as found in the survey data, appears below:

Number of Hospitals	Bed Size	Estimated Employment	Per Cent Employed	
			Full-Time	Part-Time
76	Less Than 100	5,682	70	30
86	100-199	16,894	76	24
102	200,499	45,540	80	20
57	500+	32,091	92	8
321	ALL	100,207	82	18

Appendix G contains a more detailed subdivision of estimated hospital employment by bed size. Not surprisingly, the nursing services, including surgical technicians, total 74,163 persons, or 74 per cent of the total selected occupations appearing in Tables 9 and 10. Excluding the relatively small number of surgical technicians, it appears that the combined occupations of licensed practical nurses and nurses' aides outnumber the registered nurses 39,948 to 33,405. More significantly, the percentage of

Table 9

Estimated Employment of Selected Health Occupation Personnel in Pennsylvania Hospitals[a]

	Full-Time	Part-Time	Estimated Total[b]
Dental Services			
Dental Assistants	130	14	144
Dental Hygienists	70	9	79
Dental Laboratory Technicians	39	0	39
TOTAL DENTAL SERVICES	239	23	262
Clinical Laboratory Services			
Certified Laboratory Assistants	818	94	912
Clinical Laboratory Scientists	158	15	173
Clinical Laboratory Technologists	682	84	766
Cytotechnologists*	106	21	127
Cytotechnologists, Other	66	9	75
Histologic Technicians*	144	13	157
Histologic Technicians, Other	140	22	162
Medical Laboratory Technicians*	1,059	310	1,369
Medical Technologists*	939	163	1,102
Medical Technologists, Other	346	121	467
TOTAL CLINICAL LABORATORY SERVICES	4,458	852	5,310
Dietary Services			
Dietitians*	469	87	556
Dietitian Assistants	367	29	396
TOTAL DIETARY SERVICES	836	116	952
Medical Record Services			
Medical Librarians*	88	22	110
Medical Librarians, Other	96	5	101
Medical Record Administrators	110	8	118
Medical Record Librarians*	78	0	78
Medical Record Librarians, Other	69	4	73
Medical Record Technicians*	126	16	142
Medical Record Technicians, Other	329	47	376
Medical Record Clerks	1,214	137	1,351
TOTAL MEDICAL RECORD SERVICES	2,110	239	2,349
Nursing Services			
Nurses, Registered	24,470	8,935	33,405
Nurses, Licensed, Practical or Vocational	11,172	3,797	14,969
Nursing Aides	22,892	2,087	24,979
Surgical Technicians	779	31	810
TOTAL NURSING SERVICES	59,313	14,850	74,163

[a]"Survey of Hospital Employes in Health-Related Occupations in Pennsylvania," Pennsylvania Department of Education, Bureau of Information Systems, Harrisburg, Pa., 1974.

[b]The technique used to estimate the number of employes can be found in a footnote at the end of Table 10.

*Includes only certified, licensed or registered personnel.

Table 9 (Cont'd)

	Full-Time	Part-Time	Estimated Total[b]
Pharmacy			
Pharmacists, Licensed	783	200	983
Pharmacy Assistants	159	29	188
Pharmacy Aides	311	60	371
TOTAL PHARMACY SERVICES	1,253	289	1,542
Radiologic Technology			
Nuclear Medicine Technicians*	149	0	149
Nuclear Medicine Technologists*	74	0	74
Radiation Therapy Technologists*	96	7	103
Radiation Therapy Technicians*	249	22	271
Radiation Therapy Technologists, Other	17	6	23
Radiation Therapy Assistants	9	0	9
Radiologic Technologists	1,524	180	1,704
Radiologic Assistants	118	21	139
X-Ray Assistants	153	29	182
TOTAL RADIOLOGIC SERVICES	2,389	265	2,654
Therapeutic Services			
Inhalation Therapists*	300	7	307
Inhalation Therapists, Other	402	22	424
Inhalation Therpay Aides	215	28	243
Occupational Therapists*	145	22	167
Occupational Therapy Assistants*	75	0	75
Occupational Therapy Aides	283	6	289
Physical Therapists, Licensed	502	87	589
Physical Therapists, Other	69	7	76
Physical Therapy Assistants/Aides	564	32	596
Recreation Therapists	353	3	356
Recreation Therapy Aides	228	1	229
Respiratory Therapists*	117	0	117
Respiratory Therapy Technicians*	241	18	259
Social Workers, Masters/Baccalaureate Degree	1,188	67	1,255
Social Workers, Assistants/Aides	183	11	194
Speech Pathologists/Audiologists*	75	35	110
Speech Pathologists/Audiologists, Other	39	7	46
TOTAL THERAPEUTIC SERVICES	4,979	353	5,332
Other Health Professional and Technical Services			
Assistant to the Primary Care Physician	19	0	19
Electrocardiographic Technicians	596	98	694
Electroencephalograph Technicians	148	27	175
Hospital Administrators	345	12	357
Hospital Administrator Assistants	385	8	393
Medical Assistants*	7	3	10
Medical Assistants, Other	43	0	43
Medical Secretaries	1,415	102	1,517
Obstetrical Aides	21	4	25
Operating Room Technicians*	556	29	585
Orthopaedic Physician's Assistant	52	0	52
Pediatric Aides	21	0	21
Specialists in Boood Bank Technology	126	27	153
Urologic Physician's Assistant	15	4	19
Ward Clerks	3,265	315	3,580
TOTAL OTHER PROFESSIONAL AND TECHNICAL SERVICES	7,014	629	7,643
TOTAL ALL SERVICES	82,591	17,616	100,207

*Includes only certified, licensed or registered personnel.

Table 10

Estimated Number of Employes in Pennsylvania Hospitals by Bed Size and Select Occupations[a]

Number of Usable Survey Forms[b]	28		33		34		19		114	
Number of Beds	Less Than 100		100-199		200-499		500 +		TOTAL	
Category of Personnel	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time
DENTAL SERVICES										
Dental Assistants	8	5	5	3	39	3	78	3	130	14
Dental Hygienists*	0	4	0	5	16	0	54	0	70	9
Dental Laboratory Technicians	1	0	5	0	3	0	30	0	39	0
CLINICAL LABORATORY SERVICES										
Certified Laboratory Assistants	29	5	138	16	519	58	132	15	818	94
Clinical Laboratory Scientists	1	0	21	3	103	12	33	0	158	15
Clinical Laboratory Technologists	25	4	70	47	320	27	267	6	682	84
Cytotechnologists*	0	0	13	3	81	18	12	0	106	21
Cytotechnologists, Other	0	0	11	3	43	6	12	0	66	9
Histologic Technicians*	3	4	18	0	105	9	18	0	144	13
Histologic Technicians, Other	4	0	44	10	65	9	27	3	140	22
Medical Laboratory Technicians*	49	4	177	29	665	277	168	0	1,059	310
Medical Technologists*	54	8	141	23	549	78	195	54	939	163
Medical Technologists, Other	47	7	73	23	145	73	81	18	346	121
DIETARY SERVICES										
Dietitians*	22	35	81	16	183	15	183	21	469	87
Dietitian Assistant	40	13	42	13	252	3	33	0	367	29

[a]"Survey of Hospital Employes in Health-Related Occupations in Pennsylvania," Pennsylvania Department of Education, Bureau of Information Systems, Harrisburg, Pa., 1974.

[b]The number of employes in each of the occupational categories was computed on the basis of the ratio of usable returns to the actual number of hospitals by bed-size categories. The obtained ratios were multiplied by the obtained number of employes of a given category for that bed size to correct the survey figure upward to an approximation of what would have been obtained if all institutions had responded. It assumes the sample mean for a given bed size to be a reasonably accurate indicator of typical employment for institutions of that size. For example, for bed size 100-199 with regard to full-time registered nurses, the number of institutions surveyed (N = 33) was divided into the number of institutions of that size in Pennsylvania (N = 86). The ratio of 2.61 that resulted (86 ÷ 33) was then multiplied by the mean number of RNs in the survey sampling of institutions of bed size 100-199, i.e., 2.61 times 1,715 = 4,476 full-time nurses. The total number of individuals estimated for each occupation is a summation of the individual estimates for each hospital size. The estimates are based on a 36 per cent sample of all Pennsylvania hospitals.

*Includes only certified, licensed or registered personnel.

Table 10 (Cont'd)

Number of Usable Survey Forms	28		33		34		19		114	
Number of Beds	Less Than 100		100-199		200-499		500 +		TOTAL	
Category of Personnel	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time
MEDICAL RECORD SERVICES										
Medical Librarians*	7	4	18	0	45	18	18	0	88	22
Medical Librarians, Other	48	5	8	0	19	0	21	0	96	5
Medical Record Administrators	11	5	18	0	63	[illegible]	18	[illegible]	110	8
Medical Record Librarians*	16	0	16	0	28	0	18	[illegible]	78	0
Medical Record Librarians, Other	12	1	21	0	30	3	6	[illegible]	69	4
Medical Record Technicians*	9	7	26	3	82	6	9	0	126	16
Medical Record Technicians, Other	19	7	52	10	225	24	33	6	329	47
Medical Record Clerks	51	15	258	34	554	61	351	27	1,214	137
NURSING SERVICES										
Nurses, Registered	1,041	803	4,476	2,341	11,693	4,342	7,260	1,449	24,470	8,935
Nurses, Licensed, Practical or Vocational	656	186	1,754	410	5,984	2,628	2,778	573	11,172	3,797
Nursing Aides	1,012	307	3,015	634	6,334	792	12,531	354	22,892	2,087
Surgical Technicians	40	4	120	5	451	22	168	0	779	31
PHARMACY										
Pharmacists, Licensed	15	39	107	34	427	94	23[illegible]	33	783	200
Pharmacy Assistants	1	12	26	5	84	6	48	6	159	29
Pharmacy Aides	8	14	60	13	174	24	69	9	311	60
RADIOLOGIC TECHNOLOGY										
Nuclear Medicine Technicians*	4	0	16	0	78	0	51	0	149	0
Nuclear Medicine Technologists*	0	0	3	0	68	0	3	0	74	0
Radiation Therapy Technologists*	3	4	0	0	78	3	15	0	96	7
Radiation Therapy Technicians*	18	0	89	10	91	12	51	0	249	22
Radiation Therapy Technologists, Other	0	0	5	3	12	3	0	0	17	6
Radiation Therapy Assistants	3	0	0	0	6	0	0	0	9	0
Radiologic Technologists	80	37	303	73	829	64	312	6	1,524	180
Radiologic Assistants	4	3	34	3	62	15	18	0	118	21
X-Ray Assistants	15	12	39	5	84	0	15	12	153	29
THERAPEUTIC SERVICES										
Inhalation Therapists*	18	4	34	0	140	3	108	0	300	7
Inhalation Therapists, Other	21	8	91	8	170	3	120	3	402	22
Inhalation Therapy Aides	0	0	42	16	149	12	24	0	215	28
Occupational Therapists*	28	0	8	0	22	13	87	9	145	22
Occupational Therapy Assistants*	1	0	8	0	3	0	63	0	75	0

*Includes only certified, licensed or registered personnel.

Table 10(Cont'd)

Number of Usable Survey Forms	28		33		34		19		114	
Number of Beds	Less Than 100		100-199		200-499		500 +		TOTAL	
Category of Personnel	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time
Occupational Therapy Aides	28	0	8	3	7	0	240	3	283	6
Physical Therapists*	109	15	91	16	182	47	120	9	502	87
Physical Therapists, Other	4	4	18	0	41	3	6	0	69	7
Physical Therapy Assistants/Aides	48	4	115	16	266	9	135	3	564	32
Recreation Therapists	11	0	8	0	43	3	291	0	353	3
Recreation Therapy Aides	0	1	3	0	33	0	192	0	228	1
Respiratory Therapists*	0	0	18	0	99	0	0	0	117	0
Respiratory Therapy Technicians*	0	0	21	3	196	12	24	3	241	18
Social Workers--Masters/ Baccalaureate Degree	42	25	107	8	385	19	654	15	1,188	67
Social Worker Assistants/Aides	4	8	18	0	110	3	51	0	183	11
Speech Pathologist & Audiologist	4	16	18	13	29	6	24	0	75	35
Speech Pathologists & Audiologists, Other	7	1	8	0	5	6	18	0	39	7
OTHER HEALTH PROFESSIONAL AND TECHNICAL SERVICES, NOT ELSEWHERE COUNTED										
Assistant to Primary Care Physician/ Medical Corpsman	3	0	0	0	13	0	3	0	19	0
Electrocardiographic Technicians	36	16	104	31	333	39	123	12	596	98
Electroencelphelograph Technicians	0	0	13	18	90	9	45	0	148	27
Hospital Administrators	76	0	86	0	111	9	72	3	345	12
Hospital Administrator Assistants	24	5	30	3	178	0	123	0	385	8
Medical Assistants*	4	0	0	0	0	0	3	3	7	3
Medical Assistants, Other	0	0	10	0	0	0	33	0	43	0
Medical Secretaries	54	25	209	18	786	56	366	3	1,415	102
Obstetrical Aides	4	4	0	0	17	0	0	0	21	4
Operating Room Technicians*	28	5	70	5	311	19	147	0	556	29
Orthopaedic Physician's Assistant	0	0	0	0	22	0	30	0	52	0
Pediatric Aides	0	0	0	0	12	0	9	0	21	0
Specialists in Blood Bank Technology*	0	0	8	5	67	22	51	0	126	27
Urologic Physician's Assistant	0	4	0	0	3	0	12	0	15	4
Ward Clerks	51	22	397	78	1,911	215	906	0	3,265	315
GRAND TOTAL	3,961	1,721	12,876	4,018	36,324	9,216	29,430	2,661	82,591	17,616

full-time employed registered nurses is comparatively low (56 per cent) in the smaller hospitals (less than 100-bed size). Full-time employment of registered nurses increases in larger hospitals (note that the 500+ bed size hospitals employ 83 per cent of their RN's full-time). The percentage of full-time licensed practical nurses remains consistently high except as indicated for the 200-499 bed size hospitals. Nurses aides, on the other hand, have the highest percentage of full-time hospital employment ranging from 77 to 97 per cent for an overall 92 per cent in all hospitals. The latter is important to hospital operations from the budgetary and economic point of view because of occupational salary differentials in nursing services. It is especially important to postsecondary planners in program/curriculum considerations in health occupations education at this level of service.

A synopsis of estimated nursing service employment, by bed size, appears below:

Bed Size	Total Nursing Service Employment (Per Cent Employed Full-Time Appears in Parentheses) RN	LPN	Nurse Aide
Less Than 100	1,844 (56)	842 (78)	1,319 (77)
100-199	6,817 (66)	2,164 (81)	3,649 (83)
200-499	16,035 (73)	8,612 (69)	7,126 (89)
500 +	8,709 (83)	3,351 (83)	12,885 (97)
ALL	33,405 (73)	14,969 (75)	24,979 (92)

D. Comparison of Select Health Professional and Technical Employes in Hospitals in Pennsylvania, 1968 and 1974

Table 11 is a comparison of a 1968 survey of employes with 1974 survey-based estimates for selected occupations in Pennsylvania hospitals. In both instances, the questionnaires used in the surveys excluded such categories as physicians, dentists, volunteer workers, private duty nurses and persons who work "on call" to relieve temporarily absent employes. Furthermore, both surveys defined full-time personnel as persons whose regularly scheduled working week was 35 hours or more and part-time personnel as those having fewer than 35 hours in a scheduled work week. The 1973 survey was, however, significantly different in two respects. First, the 1974 survey included a wider range of occupations. Second, it pinpointed employment status for persons on the payroll as of July 1 (first day of the fiscal year), whereas the 1968 report specified employment counts for a designated reporting week in April.

Table 11

A Comparison of the Estimated Number of Personnel Employed in Pennsylvania Hospitals by Select Occupations, 1968 and 1974

Occupation	1968[a] Full-Time Personnel	1968[a] Part-Time Personnel	1974[b] Full-Time Personnel	1974[b] Part-Time Personnel
Dental Services				
Dental Assistants	0	0	130	14
Dental Hygienists	0	0	70	9
Dental Laboratory Technicians	0	0	39	0
TOTAL DENTAL SERVICES	0	0	239	23
Clinical Laboratory Services				
Certified Laboratory Assistants	0	0	818	94
Clinical Laboratory Scientists	0	0	158	15
Clinical Laboratory Technologists	0	0	675	84
Cytotechnologists*	91	18	106	21
Cytotechnologists, Other	58	8	66	9
Histologic Technicians*	77	5	144	13
Histologic Technicians, Other	148	7	140	22
Medical Laboratory Technicians*	0	0	1,059	310
Medical Laboratory Technologists*	875	172	939	163
Medical Technologists, Other	597	102	346	121
Other Clinical Laboratory Services	0	0	0	0
TOTAL CLINICAL LABORATORY SERVICES	1,846	312	4,451	852
Dietary Services				
Dietitians*	389	78	469	87
Dietitian Assistants	0	0	367	29
TOTAL DIETARY SERVICES	389	78	836	116
Medical Record Services				
Medical Librarians*	40	11	88	22
Medical Librarians, Other	120	17	96	5
Medical Record Administrators	0	0	110	8
Medical Record Librarians*	147	10	78	0
Medical Record Librarians, Other	129	13	69	4
Medical Record Technicians*	59	6	126	16
Medical Record Technicians, Other	411	102	329	47
Medical Record Clerks	0	0	1,214	137
TOTAL MEDICAL RECORD SERVICES	906	159	2,110	239
Nursing Services				
Nurses, Registered	20,672	10,668	24,470	8,935
Nurses, Licensed Practical or Vocational	8,864	1,674	11,172	3,797
Nursing Aides	24,322	2,577	22,892	2,087
Surgical Technicians	1,060	89	779	31
TOTAL NURSING SERVICES	54,918	15,008	59,313	14,850

[a] Pennsylvania Hospital Manpower Demand, Individual County Data, Hospital Educational and Research Foundation of Pennsylvania, Camp Hill, Pa., 1968.

[b] Survey of Pennsylvania Hospitals, Unpublished data, Bureau of Information Systems, Division of Research, Pennsylvania Department of Education, 1974.

*Includes only certified, licensed or registered personnel.

Table 11 (Cont'd)

Occupation	1968 Full-Time Personnel	1968 Part-Time Personnel	1974 Full-Time Personnel	1974 Part-Time Personnel
Pharmacy				
Pharmacists, Licensed	524	152	783	200
Pharmacy Assistants	293	92	159	29
Pharmacy Aides	0	0	311	60
TOTAL PHARMACY SERVICES	817	244	1,253	289
Radiologic Services				
Nuclear Medicine Technicians*	0	0	149	0
Nuclear Medicine Technologists*	0	0	74	0
Radiation Therapy Technologists*	(	(	96	7
Radiation Therapy Technicians*	(84	(2	249	22
Radiation Therapy Technologists, Other	30	3	17	6
Radiation Therapy Assistants	21	2	9	0
Radiologic Technologists	1,218	86	1,524	180
Radiologic Assistants	0	0	118	21
X-Ray Assistants	335	48	153	29
TOTAL RADIOLOGIC SERVICES	1,688	141	2,389	265
Therapeutic Services				
Inhalation Therapists*	85	11	300	7
Inhalation Therapists, Other	340	60	402	22
Inhalation Therapy Aides	0	0	215	28
Occupational Therapists*	187	22	145	22
Occupational Therapy Assistants*	32	0	75	0
Occupational Therapy Aides	366	9	283	6
Physical Therapists, Licensed	372	139	502	87
Physical Therapists, Other	58	7	69	7
Physical Therapy Assistants/Aides	400	42	564	32
Recreation Therapists	247	37	353	3
Recreation Therapy Aides	0	0	229	1
Respiratory Therapists*	0	0	117	0
Respiratory Therapy Technicians*	0	0	241	18
Social Workers, Masters/Baccalaureate Degree	888	81	1,188	67
Social Workers, Assistants/Aides	104	15	183	11
Seeech Pathologists/Audiologists*	61	14	75	34
Speech Pathologists/Audiologists, Other	40	16	39	6
TOTAL THERAPEUTIC SERVICES	3,180	453	4,980	351
Other Health Professional and Technical Services				
Assistant to the Primary Care Physician	0	0	16	0
Electrocardiographic Technicians	423	69	596	98
Electroencephalograph Technicians	102	23	148	27
Hospital Administrators	0	0	345	12
Hospital Administrator Assistants	0	0	385	8
Medical Assistants*	0	0	7	3
Medical Assistants, Other	0	0	43	0
Medical Secretaries	1,914	154	1,415	102
Obstetrical Aides	0	0	21	4
Operating Room Technicians*	0	0	556	29
Orthopaedic Physician's Assistant	0	0	52	0
Pediatric Aides	0	0	21	0
Specialists in Blood Bank Technology	0	0	126	27
Urologic Physician's Assistant	0	0	15	4
Ward Clerks	2,316	323	3,265	315
TOTAL OTHER PROF. AND TECHNICAL SERVICES	4,755	569	7,011	629

The inclusion of a greater number of occupations in the 1974 survey combined with changing job descriptions, job interpretation and other factors poses a problem in presenting the data of Table 11 in meaningful manpower terms. For ease in reading and interpreting, only comparable 1968-1974 data categories have been abstracted and appear below using full-time equivalent employment figures for the occupations shown.

Occupation	FTE Hospital Employment 1968	1974	Change No.	Per Cent
Cytotechnologists (Certificate)*	98	119	21	21
Cytotechnologists, Other	61	71	10	16
Histologic Technicians (Cert.)	79	152	73	92
Histologic Technicians, Other	152	153	1	0
Medical Technologists (Cert.)	959	1,037	78	8
Dietitians (Cert.)	421	521	100	24
Medical Librarians (Cert.)	43	101	58	135
Medical Librarians, Other	128	99	-29	-23
Medical Records Librarian (Cert.)	150	78	-72	-48
Medical Records Librarian, Other	135	71	-64	-47
Medical Records Technician (Cert.)	62	136	74	119
Medical Records Technician, Other	457	357	-100	-22
Nurses, Registered	25,843	29,831	3,988	15
Nurses, Licensed Practical	9,845	13,450	3,605	37
Surgical Technician	1,103	798	-305	-28
Pharmacists, Licensed	589	903	314	53
Pharmacists, Assistants	327	176	-151	-46
Radiation Therapy Technologists/ Technicians (Cert.)	85	362	277	326
Radiation Therapy Technologists/ Technicians, Other	31	21	-10	-32
Radiation Therapy Assistants	21	9	-12	-57
Radiologic Technologists (Cert.)	1,261	1,632	371	29
X-Ray Assistants	357	170	-187	-52
Inhalation Therapists (Cert.)	91	304	213	234
Inhalation Therapists, Other	373	415	42	11
Occupation Therapists (Cert.)	197	158	-39	-20
Occupation Therapy Assistants	32	75	43	134
Occupation Therapy Aides	369	287	-82	-22
Physical Therapists (Cert.)	375	554	179	48
Physical Therapists, Other	62	73	11	18
Physical Therapy Asst./Aides	418	583	165	39
Recreation Therapists	260	355	95	37
Social Workers (MA & Baccalaureate)	925	1,228	303	33
Social Workers, Assistant/Aides	112	190	78	70
Speech Pathologists/Audiologists (Cert.)	66	95	29	44
Speech Pathologists/Audiologists Other	49	43	-6	-12
Electrocardiographic Technicians	457	655	198	43
Electroencephalographic Technicians	111	164	53	48
Ward Clerks	2,450	3,454	1,004	41
Totals	48,554	58,880	10,326	21

*Certificate or (Cert.) hereafter will be understood to mean certified, licensed or registered.

CHAPTER VI

NURSING HOMES AS A SOURCE OF DEMAND

A. Nursing Home Services

Nursing homes are less complex organizations than hospitals. They do offer their patients a wide variety of nursing care ranging from minimum care to highly skilled nursing services. In broad terms, nursing home facilities provide three types of services: (1) skilled nursing wherein the patient requires intensive care or medical treatment; (2) a combination of skilled and intermediate care whereby some patients receive intensive care and others receive limited care, depending on the degree of service needed; and (3) intermediate care which focuses on patients who are allowed considerable independent activity but need limited medical supervision.

These facilities may be operated or controlled by county or state governments or by corporations, organizations or groups for profit (private ownership) or nonprofit (generally an organization or association). Figure 3 shows the types of services provided and the type of control for nursing homes in the Commonwealth. Further details concerning control, facility operations, services and the like may be found in the Pennsylvania Department of Public Welfare's current publication Long-Term Care Facility Standards and Regulations for Skilled Nursing Facilities and Intermediate Care Facilities.[10]

There is a two-fold purpose for including nursing homes in this report. First, nursing homes employ a large number of health occupations personnel. Second, nursing homes may be forced to expand or increase their facilities in the near future in order to accommodate more patients. For example, it is anticipated that Pennsylvania can expect a large (48 per cent) increase in its older population (age 65 and over) by the end of this century, as compared with 1970s population figures.[11] Obviously, this will require an increase in trained health care personnel and possibly new methods in services for the elderly.

B. Distribution of Nursing Homes in Pennsylvania

There were 685 nursing homes in Pennsylvania as of February 1975. These ranged in bed size from 24 or less to 500 or more (Table 12). More than two-thirds of these homes (460 out of 685) have fewer than 100 beds.

The 75,549 beds shown for Pennsylvania in Table 12 represent a gain of 5,056 beds (a 7 per cent increase) over the 1974 figure of 70,493 nursing home beds (see Appendix H for licensed and/or approved nursing homes by county, type of facility, type of control and number of beds in 1974).

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10 Long-Term Care Facility Standards and Regulations for Skilled Nursing Facilities and Intermediate Care Facilities, Pennsylvania Department of Public Welfare, Office of Medical Programs, Harrisburg, Pa., January 1975.

11 John Senier. Population Projections for Pennsylvania and Counties, 1970-2000, Bureau of Information Systems, Pennsylvania Department of Education, 1975.

Figure 3

Nursing Home Facility Services Provided[a]

Type of Nursing Home	Control of Facility			
	Profit	Nonprofit	County	State
Skilled Nursing	a. Operated for the purpose of making a profit. b. Patient service provided under general direction of a licensed physician. Services furnished by or under supervision of licensed professional nursing personnel or other professional health personnel. Patient requires comprehensive, intensive, rehabilitative, restorative or medical treatment.	a. Operated as nonprofit enterprises in accordance with the Penna. Nonprofit Corporation Act. b. Same	a. Public institution operated by county and city government. b. Same	a. Public institutions owned and operated by the state. b. Same
Combination Skilled and Intermediate Care Facility	a. Operated for the purpose of making a profit. b. Combination of skilled nursing and ICF services. See b. above and b. below.	a. Operated as nonprofit enterprises in accordance with the Penna. Nonprofit Corporation Act. b. Same	a. Public institution operated by county and city government. b. Same	a. Public institutions owned and operated by the state. b. Same
Intermediate Care Facility	a. Operated for the purpose of making a profit. b. Patients require some general and limited medical supervision. Patients are allowed considerable independent activity. Services provided under general direction of licensed physician and administered on a daily basis by nonprofessional health personnel under supervision of a professional nurse.	a. Operated as nonprofit enterprises in accordance with the Penna. Nonprofit Corporation Act. b. Same	a. Public institution operated by county and city government. b. Same	a. Public institutions owned and operated by the state. b. Same

[a]Long-Term Care Facility Standards and Regulations for Skilled Nursing Facilities and Intermediate Care Facilities, Pennsylvania Department of Public Welfare, Office of Medical Programs, January 1975.

Table 12

Nursing Homes, by Bed Size, and County in Pennsylvania, 1975[a]

County	Bed Size								No. of Nursing Homes	Beds
	24 or Less	25-49	50-99	100-199	200-299	300-399	400-499	500 & Over		
Adams	0	1	4	1	0	0	0	0	6	484
Allegheny	3	7	18	14	1	1	1	1	46	6,597
Armstrong	1	1	1	0	0	0	0	0	3	144
Beaver	1	1	2	1	0	0	0	1	6	884
Bedford	3	1	2	0	0	0	0	0	6	178
Berks	1	5	2	3	0	0	0	2	13	2,184
Blair	3	1	6	3	0	0	0	0	13	1,070
Bradford	2	0	1	0	1	0	0	0	4	323
Bucks	2	4	10	9	1	0	0	0	26	2,103
Butler	3	4	4	2	1	0	0	0	14	1,027
Cambria	0	1	1	1	0	0	2	1	6	2,044
Cameron	0	1	0	0	0	0	0	0	1	30
Carbon	2	0	1	0	1	0	0	0	4	305
Centre	0	0	1	1	1	0	0	0	3	446
Chester	0	4	8	2	1	2	0	1	18	2,681
Clarion	0	1	1	0	0	0	0	0	2	101
Clearfield	3	0	2	1	0	0	0	0	6	329
Clinton	0	1	0	1	0	0	0	0	2	158
Columbia	2	2	2	1	0	0	0	0	7	359
Crawford	0	5	3	1	2	0	0	0	11	1,046
Cumberland	3	4	3	3	1	1	0	0	15	1,354
Dauphin	1	3	2	5	0	0	1	0	12	1,471
Delaware	5	5	7	13	1	0	0	1	32	3,486
Elk	0	1	1	0	0	0	0	0	2	126
Erie	3	3	3	5	1	0	1	0	16	1,692
Fayette	0	2	5	0	0	0	0	0	7	431
Forest	0	0	0	0	0	0	0	0	0	0
Franklin	0	0	1	4	0	0	0	1	6	1,568
Fulton	0	1	0	0	0	0	0	0	1	33
Greene	0	1	0	1	0	0	0	0	2	139
Huntingdon	0	0	2	0	0	0	0	0	2	145
Indiana	3	0	2	1	0	0	0	0	6	295
Jefferson	0	0	2	1	0	0	0	0	3	271
Juniata	1	1	1	0	0	0	0	0	3	123
Lackawanna	1	4	5	6	1	0	0	0	17	1,506
Lancaster	3	8	8	10	1	0	2	1	33	4,146
Lawrence	0	2	5	3	0	0	0	0	10	837
Lebanon	2	2	3	1	1	1	0	0	10	1,122
Lehigh	1	3	3	4	1	0	0	1	13	1,978
Luzerne	2	4	4	6	1	0	0	1	18	2,337
Lycoming	6	0	5	1	1	0	0	0	13	817
McKean	1	3	1	0	0	0	0	0	5	191
Mercer	0	5	3	1	2	0	0	0	11	993
Mifflin	0	0	3	0	0	0	0	0	3	180
Monroe	0	2	1	1	0	0	0	0	4	275
Montgomery	4	11	14	13	1	0	0	1	44	4,053
Montour	0	1	3	1	0	0	0	0	5	325
Northampton	0	3	4	0	0	0	0	1	8	928
Northumberland	1	3	1	0	1	0	0	0	6	390
Perry	0	4	1	0	0	0	0	0	5	85
Philadelphia	4	25	22	24	6	1	1	1	84	9,140
Pike	0	2	0	0	0	0	0	0	2	58
Potter	0	1	1	0	0	0	0	0	2	91
Schuylkill	1	3	1	1	0	0	1	0	7	799
Snyder	2	2	1	0	0	0	0	1	6	1,780
Somerset	0	1	1	2	1	0	0	0	5	616
Sullivan	0	0	1	0	0	0	0	0	1	66
Susquehanna	0	2	1	0	0	0	0	0	3	135
Tioga	2	0	2	0	0	0	0	0	4	206
Union	1	0	1	2	0	0	0	1	5	891
Venango	0	0	3	1	0	0	0	1	5	3,601
Warren	3	3	1	2	0	0	0	0	9	596
Washington	2	2	5	1	0	0	0	1	11	1,099
Wayne	2	2	1	0	0	0	0	0	5	134
Westmoreland	4	3	3	3	0	1	0	0	14	1,136
Wyoming	0	0	0	0	0	0	0	0	0	0
York	2	2	4	4	0	0	1	0	13	1,411
TOTAL	86	164	210	161	29	7	10	18	685	75,549

[a]"Directories of Long Term Care Facilities (Nursing Homes)," Office of the Executive Secretary for Operations, Pennsylvania Department of Public Welfare, Harrisburg, Pa., February, 1975.

Forest and Wyoming counties had no nursing homes within their geographical boundaries. It can be assumed that none now exist in these counties because they are predominately rural and somewhat isolated from urban areas. The heavily populated regions, as might be expected, have the greatest number of nursing homes and beds. For example, the five counties comprising Higher Education Planning Region I (Bucks, Chester, Delaware, Montgomery and Philadelphia) (see Figure 8, page 77) have 204 nursing homes with a combined bed capacity of 21,463. This constitutes nearly 30 per cent of all nursing homes and represents more than 28 per cent of the patient beds in the state.

Since any data on nursing home beds must be considered in relation to population density, the analysis below indicates, by rank order, the number of beds per 1,000 persons aged 65 and over for each county. Population estimates for persons aged 65 and over are given for 1975 and projected for 1990 to show long-term trends for this age group that largely determines nursing home demand.

County	1975 Beds per 1,000	Aged 65 and Over[12] 1975 Population	1990 Projected Population
Snyder	558	3,198	4,098
Venango	446	7,721	9,653
Union	300	2,967	3,870
Franklin	136	11,534	15,082
Montour	122	2,666	2,880
Lancaster	112	36,887	46,866
Chester	108	24,882	40,144
Crawford	103	10,176	12,409
Lebanon	95	11,813	15,625
Warren	94	6,359	7,616
Cambria	87	23,522	30,819
Cumberland	87	15,616	23,683
Butler	77	13,324	18,368
Adams	76	6,337	8,010
Sullivan	73	903	949
Bucks	69	30,392	58,104
Mercer	67	14,891	19,469
Lawrence	65	12,905	17,260
Lehigh	62	32,072	42,721
Centre	61	7,349	10,351
Erie	60	28,233	38,821
Juniata	60	2,057	2,501
Somerset	60	10,214	12,764
Montgomery	57	70,931	101,343
Lycoming	56	14,541	17,303
Blair	55	19,369	22,545
Berks	54	40,741	50,333
Dauphin	51	29,053	36,670
Delaware	51	68,479	95,869
Columbia	50	7,246	8,854
Bradford	48	6,752	8,210
Luzerne	45	52,313	62,866
Tioga	45	4,566	5,471
Monroe	44	6,299	7,528
York	44	32,380	42,244
Washington	43	25,692	35,113
Lackawanna	42	35,661	42,667
Jefferson	41	6,567	7,324
Carbon	40	7,548	9,144
Elk	40	4,180	5,606
Potter	40	2,269	2,474
Beaver	39	22,719	33,651

[12] Ibid.

County	Beds Per 1000	Aged 65 and Over	
		1975 Population	1990 Projected Population
Clinton	36	4,433	5,740
Northampton	36	25,919	35,824
Cameron	35	835	1,168
Philadelphia	35	260,991	306,971
Bedford	34	5,220	6,509
Allegheny	33	202,921	265,887
Mifflin	33	5,429	6,977
Clearfield	32	10,150	11,954
Indiana	32	9,088	11,368
Schuylkill	32	24,926	29,964
Susquehanna	31	4,336	5,235
Huntingdon	30	4,844	5,803
Wayne	29	4,684	5,001
Fulton	26	1,271	1,518
Greene	26	5,331	5,976
Northumberland	26	15,105	17,575
Pike	26	2,255	2,308
Westmoreland	26	43,037	62,079
McKean	25	7,535	8,426
Perry	25	3,359	4,305
Clarion	21	4,738	5,496
Fayette	20	21,354	25,743
Armstrong	14	9,965	12,494
Forest	0	835	861
Wyoming	0	2,303	2,768
PENNSYLVANIA	52	1,454,080	1,885,224

C. Comparison of Nursing Home Facilities, 1969-1975

Table 13 indicates that from 1969 to 1975 there was an 8 per cent decrease in the number of nursing homes in Pennsylvania (from 745 to 685), but there was also a 51 per cent increase in total patient beds (from 50,062 to 75,549). This effect was probably caused by new federal laws and state rules and regulations relating to nursing-home operation that became effective in the late 1960s and early 1970s.

The increase in the number of patient beds may be considered especially significant because of its influence on the number of personnel required to staff nursing homes. Like hospitals, nursing homes must operate continuously for 24 hours per day throughout the year. Obviously, when the number of beds increases it has a multiplying effect on the number of personnel needed to provide services created by this increased demand for care. Employe staffing in nursing homes, however, will probably not change in the foreseeable future. That is, it is not expected that traditional functions now performed by the nursing staff, other professional/technical staff and nonprofessional employes will be altered appreciably. If, however, the trend to provide more patient beds continues, coupled with the 24-hour services (which usually require three working shifts on the premises), a sizeable increase in staffing personnel in all nursing-home occupations can be expected. Projected population figures concerning the aged in Pennsylvania will be discussed later in support of the assumption of a marked increase in health care demand over the next quarter of a century.

Table 13

Nursing Homes, by County and Patient Beds, in Pennsylvania, 1969 and 1975[a]

County	Homes 1969	Homes 1975	Total Beds 1969	Total Beds 1975	Increase/ Decrease in Beds	Per Cent Change
Adams	5	6	285	484	199	70
Allegheny	53	46	3,386	6,597	3,211	95
Armstrong	1	3	25	144	119	476
Beaver	8	6	329	884	555	169
Bedford	6	6	169	178	9	5
Berks	12	13	1,252	2,184	932	74
Blair	12	13	961	1,070	109	11
Bradford	6	4	307	323	16	5
Bucks	24	26	1,448	2,103	655	45
Butler	20	14	1,131	1,027	-104	-9
Cambria	5	6	336	2,044	1,708	508
Cameron	1	1	18	30	12	66
Carbon	2	4	190	305	115	61
Centre	4	3	361	446	85	24
Chester	21	18	1,289	2,681	1,392	108
Clarion	2	2	102	101	-1	-1
Clearfield	4	6	231	329	98	42
Clinton	3	2	132	158	26	20
Columbia	7	7	216	359	143	66
Crawford	12	11	750	1,046	296	39
Cumberland	12	15	874	1,354	480	55
Dauphin	15	12	633	1,471	838	132
Delaware	32	32	2,605	3,486	881	34
Elk	1	2	95	126	31	33
Erie	17	16	835	1,692	857	103
Fayette	11	7	694	431	-263	-38
Forest	0	0	0	0	-	-
Franklin	7	6	1,652	1,568	-84	-5
Fulton	1	1	33	33	-	-
Greene	2	2	261	139	-122	-47
Huntingdon	2	2	62	145	83	134
Indiana	8	6	342	295	-47	-14
Jefferson	6	3	372	271	-101	-27
Juniata	3	3	125	123	-2	-2
Lackawanna	16	17	1,147	1,506	359	31
Lancaster	41	33	2,413	4,146	1,733	72
Lawrence	9	10	615	837	222	36
Lebanon	13	10	980	1,122	142	14
Lehigh	11	13	1,500	1,978	478	32
Luzerne	24	18	1,030	2,337	1,307	126
Lycoming	10	13	580	817	237	41
McKean	6	5	229	191	-38	-17
Mercer	8	11	676	993	317	47
Mifflin	3	3	179	180	1	1
Monroe	6	4	234	275	41	18
Montgomery	42	44	2,983	4,053	1,070	36
Montour	2	5	114	325	211	185
Northampton	13	8	862	928	66	8
Northumberland	5	6	158	390	232	147
Perry	4	5	139	85	-54	-39
Philadelphia	113	84	9,722	9,140	-582	-6
Pike	2	2	55	58	3	5
Potter	1	2	100	91	-9	-9
Schuylkill	4	7	535	799	264	49
Snyder	7	6	255	1,780	1,525	598
Somerset	3	5	347	616	269	78
Sullivan	0	1	0	66	66	-
Susquehanna	3	3	87	135	48	55
Tioga	7	4	188	206	18	10
Union	6	5	332	891	559	168
Venango	7	5	309	3,601	3,292	1,065
Warren	5	9	258	596	338	131
Washington	13	11	723	1,099	376	52
Wayne	6	5	109	134	25	23
Westmoreland	11	14	937	1,136	199	21
Wyoming	5	0	93	0	-93	-100
York	14	13	672	1,411	739	110
TOTAL	745	685	50,062	75,549	25,487	51

[a] Nursing Homes: A County and Metropolitan Area Data Book, U.S. Department of Health, Education and Welfare, Public Health Services, Health Services and Mental Health Administration, Rockville, Md., 1973, pp. 52-53, "Directories of Long-Term Care Facilities (Nursing Homes)," Office of the Executive Secretary for Operations, Pennsylvania Department of Public Welfare, Harrisburg, Pa., February 1975.

Nursing service personnel (registered nurses, licensed practical nurses and aides) will experience the greatest employe expansion given present nursing home staffing patterns, if the current and anticipated increases in bed size continue. Nearly two out of three workers in these facilities are now involved in nursing services. It is reasonable to assume that as more patient beds are provided, additional nursing services personnel will be needed at all levels. At some time, however, the present nursing home facilities may reach a point where they will be unable to expand their accommodations. Under these circumstances, other alternatives will have to be sought. These include the opening of new facilities, the development of new methods for care of the aged, the expansion of home visitations, the creation of new government-sponsored facilities and the like.

"Other staff," such as dietitians and therapists, will also increase in numbers but at a proportionately lower rate than nursing personnel. These employes, along with most of the nonprofessional personnel, routinely provide services during normal daily operating hours and may be more flexible in the number of patients served, e.g., one dietitian may be able to serve many patients as readily as a relatively small number with some added support personnel.

D. Nursing Home Employment in Pennsylvania in Select Health Occupations

Nursing homes in Pennsylvania employed an estimated 38,747 professional and technical personnel in 1974. About 75 per cent were full-time employes and 25 per cent were part-time. Of the five major categories of services appearing in Table 14, nursing services provided 33,801 employes or about 87 per cent of all professional and technical staff.[13] The distribution of nursing services, by percentages appears below:

Nursing Services	Per Cent Distribution	
	Full-Time	Part-Time
Registered Nurse	60	40
Licensed Practical Nurse	78	22
Aides, Other	83	17
TOTAL	78	22

Other professional and technical staff, in contrast to nursing services, had larger percentages of part-time employes:

Dietitians	78 per cent
Therapeutic Services	47 per cent
Medical Records Services	61 per cent

13 "Survey of Nursing Home Employes by Select Health and Health-Related Categories in Pennsylvania," Pennsylvania Department of Education, Bureau of Information Systems, Harrisburg, Pa., 1974.

Table 14

Estimated Full-Time and Part-Time Nursing Home Employes in Selected Health Occupations in Pennsylvania, 1974 [a]

Occupation and Service [b]	Full-Time	Part-Time	TOTAL
Administrative Services			
Administrators	670	32	707
Assistant Administrators	352	92	444
TOTAL ADMINISTRATIVE SERVICES	1,022	124	1,146
Nursing Services			
Registered Nurses	3,769	2,563	6,332
Nurses, Licensed, Practical or Vocational	3,686	1,143	4,829
Nurses Aides, Orderlies, Attendants	18,771	3,869	22,640
TOTAL NURSING SERVICES	26,226	7,575	33,801
Dietitians	148	450*	598
Therapeutic Services			
Occupational Therapists, Registered	71	92	163
Occupational Therapy Assistants/Aides	266	131	397
Physical Therapists, Licensed	123	354	477
Physical Therapists, Assistants	328	90	418
Recreation Therapists	332	249	581
Social Workers	234	256	490
Speech Therapists	74	101	175
TOTAL THERAPEUTIC SERVICES	1,428	1,273	2,701
Medical Records			
Medical Record Librarians, Registered	45	226	271
Medical Record Librarians, Other	149	81	230
TOTAL MEDICAL RECORDS SERVICES	194	307	501
GRAND TOTAL	29,018	9,729	38,747

[a] "Survey of Nursing Home Employes by Select Health and Health-Related Categories in Pennsylvania," Pennsylvania Department of Education, Bureau of Information Systems, Harrisburg, Pa., 1974.

[b] This table was designed for ease of reading. The estimates of employes in Pennsylvania nursing homes were compiled by selection from Table 15 which shows similar data by nursing home bed size. The technique used to estimate the number of employes in each of the occupations can be found in a footnote at the end of Table 15.

*This figure is high because a number of nursing homes employ dietitians as "consultants" according to 1974 survey data.

The demand and need for dietitians, therapists and medical records services in nursing homes can probably be met more conveniently on a part-time basis. This is especially evident in the services of registered or licensed occupational therapists, physical therapists and medical record librarians. In contrast, almost 90 per cent of nursing home administrators are employed full-time.

The estimated numbers of professional and technical personnel appearing in Table 14 were computed on the basis of 291 usable survey returns from 685 nursing homes, representing a 42 per cent response. The methodology used to determine these estimates is similar to the methodology used to compute the number of employes in hospitals (footnote, Table 10).

As with the hospital survey, nursing home administrators and managers were asked to indicate on the survey forms the number of full-time and part-time employes on their payrolls as of July 1, 1974. These survey forms were accompanied by a detailed listing of occupations normally found in nursing home settings. Brief descriptions of these occupations were furnished to minimize occupational misunderstandings.

As in the hospital survey, some difficulties were encountered in obtaining data from the nursing homes. For example, directors or executives were asked to project their manpower needs to 1980, but the data was not or could not be provided.

E. Nursing Home Employment in 1974 by Select Health Occupations

Table 15 shows the estimated number of full-time and part-time employes, by occupation, in nursing homes grouped by bed size. These estimates were compiled by the survey-based procedure described in a footnote to Table 15.

An estimated 38,747 persons were employed in the 15 occupations normally found in nursing homes. A separate category of "other professional and technical employes, NEC," involving 681 workers, also appears in Table 15, bringing the total to 39,428. NEC means "not elsewhere counted." It is assumed that these 681 individuals comprise a heterogeneous mixture of professional and technical workers that may be too diverse to categorize specifically.

Three out of four of the professional/technical workers are found to be employed on a full-time basis. Nursing homes are seen as comparable to hospitals in terms of full-time and part-time employment when bed size of the facilities is considered. As in the base of hospitals, a breakdown of nursing homes by bed size shows that the largest institutions have more full-time personnel, while the smaller ones employ a higher percentage of part-time staff. A comparison of nursing homes with hospitals having the same bed size appears on page following Table 15. Figures in italics represent percentages of full-time and part-time employes working in hospitals of a given bed size, while the percentages in regular type are for nursing homes of that size. As can be seen, the percentages are roughly comparable.

Table 15

Estimated Number of Employes in Pennsylvania Nursing Homes by Bed Size and Select Occupations[a]

Number of Usable Survey Forms[b]	176		78		28		9		291	
Number of Beds	Less Than 100		100-199		200-499		500 +		TOTAL	
Category of Personnel	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time
Administrators	436	28	159	4	51	-	24	-	670	32
Assistant Administrators	184	82	103	10	43	-	22	-	352	92
Nurses, Registered	1,627	1,371	999	787	707	343	436	62	3,769	2,563
Nurses, Licensed, Practical or Vocational	1,528	664	1,131	323	629	146	398	10	3,686	1,143
Nurses Aide	6,512	1,919	5,311	1,339	3,314	541	3,634	70	18,771	3,869
Dietitians	60	324	41	93	29	27	18	6	148	450
Occupational Therapists, Registered	20	57	21	33	8	2	22	-	71	92
Occupational Therapist Assistants/ Aides	75	73	72	52	43	2	76	4	266	131
Physical Therapists, Licensed	46	223	39	1	24	20	14	6	123	354
Physical Therapists, Assistants	61	63	122	2	87	4	58	-	328	90
Recreation Therapists	79	188	80	54	131	5	42	2	332	249
Medical Record Librarians, Registered	30	145	10	70	5	11	-	-	45	226
Other Medical Records Librarians/ Technicians	45	46	52	29	36	6	16	-	149	81
Social Workers, Medical	61	179	35	68	38	7	100	2	234	256
Speech Therapists	4	52	4	39	34	10	32	-	74	101
Other Professional and Technical Employes, NEC*	215	103	33	31	198	29	68	4	514	167
GRAND TOTAL	10,983	5,517	8,212	3,060	5,377	1,153	4,960	166	29,532	9,896

[a] "Survey of Nursing Home Employes by Select Health and Health-Related Categories in Pennsylvania," Pennsylvania Department of Education, Bureau of Information Systems, Harrisburg, Pa., 1974.

[b] The technique used to estimate the number of employes in each of the occupational categories was based on the ratio of usable returns to the actual number of nursing homes by bed size categories. The obtained ratios were multiplied by the obtained number of employes of a given category for that bed size to correct the survey figure upward to an approximation of what would have been obtained if all institutions had responded. It assumes the sample mean to be a reasonably accurate indicator of typical employment for institutions of that size. For example, for bed size 100-199, with regard to full-time registered nurses, the number of institutions surveyed (N = 78) was divided into the number of institutions of that size in Pennsylvania (N = 161). The ratio of 2.06 that resulted (161 ÷ 78) was then multiplied by the mean number of RN's in the survey sampling of institutions of bed size 100-199, i.e., 2.06 times 485 = 999 full-time nurses. The total number of individuals estimated for each occupation is a summation of the individual estimates for each nursing home size. The estimates are based on a 42 per cent sample of all Pennsylvania nursing homes.

Nursing Homes			Per Cent Employed			
Number	Bed Size	Estimated Employment	FT Nursing Home	FT Hospital	PT Nursing Home	PT Hospital
460	Less Than 100	16,500	67	70	33	30
161	100-199	11,272	73	76	27	24
46	200-499	6,530	82	80	18	20
18	500+	5,126	97	92	3	8
685	ALL	39,428	75	82	25	18

About 91 per cent of the nursing homes in Pennsylvania can be classified as relatively small, that is, fewer than 200 beds. Only nine per cent of the homes have 200 or more beds. Because of the large number of small nursing homes, more professional and technical persons have been employed to staff them: 27,772, or 70 per cent of the total employed in the selected occupations. Conversely, the larger nursing homes (nine per cent of the total facilities) employed 11,656, or 30 per cent of the total select professional and technical workers.

Appendix I contains a detailed breakdown of nursing home bed sizes and estimated number of professional and technical employes.

F. Comparison of Select Health Professional and Technical Employes in Nursing Homes in Pennsylvania, 1968 and 1974

Table 16 compares the 1968 and the 1974 distribution of selected professional and technical employes in nursing homes in the Commonwealth. Data for 1968 was obtained from national survey results.[14] Data from 1974 represent findings of employment in Pennsylvania nursing homes from the nursing home survey mentioned earlier in this report.

Nursing homes provide limited services in contrast to hospitals; consequently, the types of personnel needed to staff these facilities are narrowly defined. For example, patient care is normally provided through nursing, dietetic and a variety of therapeutic services. Additional services, not directly involving health care, include administration, library and record-keeping functions. It was not the intent of this study to examine other professional and nonprofessional occupational categories involved in nursing home operations. These range from physician services provided intermittently to indispensible services provided by food handlers.

14 Employes in Nursing Homes: United States, April-September 1968, U.S. Department of Health, Education and Welfare, National Center for Health Statistics, Rockville, Md., October 1972.

Table 16

Full-Time and Part-Time Personnel Employed in Nursing Homes in Pennsylvania by Select Occupations, 1968 and 1974

Occupation	1968[a] Full-Time Personnel	1968[a] Part-Time Personnel	1974[b] Full-Time Personnel	1974[b] Part-Time Personnel
Administrative Services				
Administrators	N/R*	N/R*	670	32
Assistant Administrators	N/R*	N/R*	352	92
TOTAL ADMINISTRATIVE SERVICES	N/R*	N/R*	1,022	124
Nursing Services				
Registered Nurses	1,749	1,118	3,769	2,563
Nurses, Licensed, Practical, Vocational	3,609	1,084	3,686	1,143
Nurses Aides (1974 data also includes orderlies and attendants)	9,248	2,226	18,771	3,869
TOTAL NURSING SERVICES	14,606	4,428	26,226	7,575
Dieticians	158	248	148	450
Therapeutic Services				
Occupational Therapists	107	202	71	92
Occupational Therapy Assistants/Aides			266	131
Physical Therapists, Licensed	161	248	123	354
Physical Therapy Assistants			328	90
Recreation Therapists	90	154	332	249
Social Workers	44	122	234	256
Speech Therapists	9	105	74	101
TOTAL THERAPEUTIC SERVICES	411	831	1,428	1,273
Medical Records				
Medical Record Librarian	58	66	44	226
Other Medical Record Librarian/Technician			149	81
TOTAL MEDICAL RECORDS	58	66	193	307

[a]Employes in Nursing Homes: United States, April-September, 1968, U.S. Department of Health, Education and Welfare, National Center for Health Statistics, Rockville, Md., October 1972.

[b]Survey of Pennsylvania Nursing Homes, Unpublished data, Bureau of Information Systems, Division of Research, Pennsylvania Department of Education, Harrisburg, Pa., 1974.

*Abbreviation N/R indicates not reported.

To make clear the comparatively large employment increase observed during the six-year period 1968-1974, a summary of the total number of workers, by service provided, appears below. For simplicity, the figures for the number of employes working in job categories titled occupational therapists, physical therapists and medical record librarians also include their "assistants, aides and others." (A national survey of nursing homes conducted in 1968 made similar combinations.)

Occupation	Combined Full-Time and Part-Time Employes		Change	
	1968	1974	Number	Per Cent
Registered Nurses	2,867	6,332	3,465	121
Nurses, Licensed Practical	4,693	4,829	136	3
Nurses Aides	NOT COMPARABLE			
Dietitians	406	598	192	47
Occupation Therapists/ Assistants/Aides	309	560	251	81
Physical Therapists, Licensed/Accredited	409	895	486	119
Recreation Therapists	244	581	337	138
Social Workers	166	490	324	195
Speech Therapists	114	175	61	54
Medical Record Librarian/ Technician	124	500	376	303

It should be noted that adequate data are not available in Table 16 to make comparisons of nursing home administrators and assistant administrators. However, two significant factors affecting personnel involved in these occupations should be mentioned. First, a 1969 national survey of administrators found that the median number of years of schooling for nursing home administrators was 13.1. Survey results showed that about 28.5 per cent of the more than 18,000 administrators had completed high school, while 21 per cent had less than a twelfth grade education. Second, federal guidelines for applicants for full licensure now suggest completion of the following education requirements:[15]

Education to be completed by:			
July 1 1970	Jan. 1 1975	Jan. 1 1980	Jan. 1 1985
High school diploma or equivalent	Two years of college	Baccalaureate degree	Master's degree

15 Administration of Nursing and Personal Care Homes: Education and Training, United States, June-August, 1969, U.S. Department of Health, Education and Welfare, Public Health Service, National Center for Health Services, Rockville, Md., 1973.

Briefly, a person meeting the above education requirements may receive full licensure if he/she passes the state board licensure examination. Unfortunately, the proposed federal guidelines make no reference to completion of specific nursing home programs. In the Commonwealth several institutions currently offer continuing education programs to prepare applicants for licensure examinations, but there are no specifically designed postsecondary academic programs for nursing home administrators in the state.

G. Population Growth and Its Effect on Nursing Homes

As suggested earlier,[16] during the last quarter of this century, Pennsylvania can expect an extraordinary increase in its elderly population. Table 17 shows the state's projected county and state population of persons aged 65 and over. Briefly, in 1975 there were more than 1.4 million persons in this age category (12.1 per cent of an estimated population of 12 million). By 1990 persons aged 65 and over in the Commonwealth will number about 1.9 million (15.4 per cent of an estimated 12.2 million). According to the population projections appearing in Table 17, Pike County stands alone in having a projected decrease in percentage of its elderly in relation to its total population. All other counties can expect moderate to substantially high increases. Again, not surprisingly, the more densely populated counties (300,000 or over) can expect large numbers of elderly persons as part of their total population:

Selected (High Density) Counties	Population Aged 65 & Over			Per Cent Change 1975-1990
	1975	1990	Change	
Allegheny	202,921	265,887	62,966	31.0
Berks	40,741	50,333	9,592	23.5
Bucks	30,392	58,104	27,712	91.1
Chester	24,882	40,144	15,262	61.3
Delaware	68,479	95,869	27,390	39.9
Lancaster	36,887	46,866	9,979	27.0
Luzerne	52,313	62,866	10,553	20.1
Montgomery	70,931	101,303	30,372	42.8
Philadelphia	260,991	306,971	45,980	17.6
Westmoreland	43,037	62,079	19,042	44.2
10-County Total	831,574	1,090,422	258,848	31.1

16 Senier, op. cit.

Table 17

Pennsylvania Population Projections to 1990 by County and Persons Aged 65 and Over[a]

County	Estimated Population 1975	Estimated Population Age 65 & Over	Per Cent Age 65 & Over	Estimated Population 1990	Estimated Population Age 65 & Over	Per Cent Age 65 & Over
Adams	58,405	6,337	10.9	60,754	8,010	13.2
Allegheny	1,599,554	202,921	12.7	1,550,527	265,887	17.1
Armstrong	75,072	9,965	13.3	69,482	12,494	18.0
Beaver	209,123	22,719	10.9	204,193	33,651	16.5
Bedford	42,726	5,220	12.2	41,032	6,509	15.9
Berks	302,151	40,741	13.5	312,195	50,333	16.1
Blair	135,767	19,369	14.3	130,378	22,545	17.3
Bradford	59,312	6,753	11.4	60,451	8,210	13.6
Bucks	450,500	30,392	6.7	573,731	58,104	10.1
Butler	131,965	13,324	10.1	141,675	18,368	13.0
Cambria	184,129	23,522	12.8	166,209	30,819	18.5
Cameron	7,074	835	11.8	6,543	1,168	17.9
Carbon	50,225	7,548	15.0	46,364	9,144	19.7
Centre	105,463	7,349	7.0	129,028	10,351	8.0
Chester	299,187	24,882	8.3	370,000	40,144	10.8
Clarion	38,885	4,738	12.2	38,860	5,496	14.1
Clearfield	73,809	10,150	13.8	66,101	11,954	18.0
Clinton	38,105	4,433	11.6	37,566	5,740	15.3
Columbia	55,732	7,246	13.0	55,681	8,854	15.9
Crawford	82,804	10,176	12.3	83,192	12,409	14.9
Cumberland	168,158	15,616	9.3	200,904	23,683	11.8
Dauphin	226,898	29,053	12.8	225,534	36,670	16.3
Delaware	610,701	68,479	11.2	632,160	95,869	15.2
Elk	38,134	4,180	11.0	37,164	5,606	15.1
Erie	270,882	28,233	10.4	277,485	38,821	14.0
Fayette	152,699	21,354	14.0	136,854	25,743	18.8
Forest	4,944	835	16.9	4,905	861	17.6
Franklin	104,847	11,534	11.0	112,746	15,082	13.4
Fulton	10,961	1,271	11.6	10,834	1,518	14.0
Greene	35,728	5,331	14.9	32,349	5,976	18.5
Huntingdon	39,634	4,844	12.2	38,592	5,803	15.0
Indiana	80,850	9,088	11.2	83,155	11,368	13.7
Jefferson	43,129	6,567	15.2	39,098	7,324	18.7
Juniata	17,098	2,057	12.0	17,216	2,501	14.5
Lackawanna	233,778	35,661	15.3	222,949	42,667	19.1
Lancaster	333,401	36,887	11.1	363,810	46,866	12.9
Lawrence	106,485	12,905	12.2	100,186	17,260	17.2
Lebanon	102,437	11,813	11.5	106,274	15,625	14.7
Lehigh	262,771	32,072	12.2	281,432	42,721	15.2
Luzerne	341,778	52,313	15.3	324,563	62,866	19.4
Lycoming	115,601	14,541	12.6	116,296	17,303	14.9
McKean	51,649	7,535	14.6	47,707	8,426	17.7
Mercer	127,564	14,891	11.7	124,188	19,469	15.7
Mifflin	46,041	5,429	11.8	45,538	6,977	15.3
Monroe	47,144	6,199	13.1	51,226	7,528	14.7
Montgomery	649,203	70,931	10.9	735,125	101,343	13.8
Montour	16,354	2,666	16.3	15,387	2,880	18.7
Northampton	217,507	25,919	11.9	221,151	35,824	16.2
Northumberland	98,620	15,105	15.3	91,157	17,575	19.3
Perry	29,490	3,359	11.4	30,406	4,305	14.2
Philadelphia	1,959,337	260,991	13.3	1,899,443	306,971	16.2
Pike	12,420	2,255	18.2	14,091	2,308	16.4
Potter	16,519	2,269	13.7	15,710	2,474	15.7
Schuylkill	158,058	24,926	15.8	141,689	29,964	21.1
Snyder	30,431	3,189	10.5	33,246	4,098	12.3
Somerset	76,104	10,214	13.4	71,810	12,764	17.8
Sullivan	5,843	903	15.4	5,383	949	17.6
Susquehanna	34,959	4,336	12.4	34,919	5,235	15.0
Tioga	40,679	4,566	11.2	42,795	5,471	12.8
Union	29,574	2,967	10.0	31,961	3,870	12.1
Venango	62,380	7,721	12.4	59,974	9,653	16.1
Warren	48,587	6,359	13.1	49,845	7,616	15.3
Washington	211,039	25,692	12.2	201,683	35,113	17.4
Wayne	29,970	4,684	15.6	29,470	5,001	17.0
Westmoreland	382,911	43,037	11.2	391,292	62,079	15.9
Wyoming	20,261	2,303	11.4	22,282	2,768	12.4
York	283,486	32,380	11.4	308,145	42,244	13.7
TOTAL PENNSYLVANIA	11,987,029	1,454,080	12.1	12,224,091	1,885,224	15.4

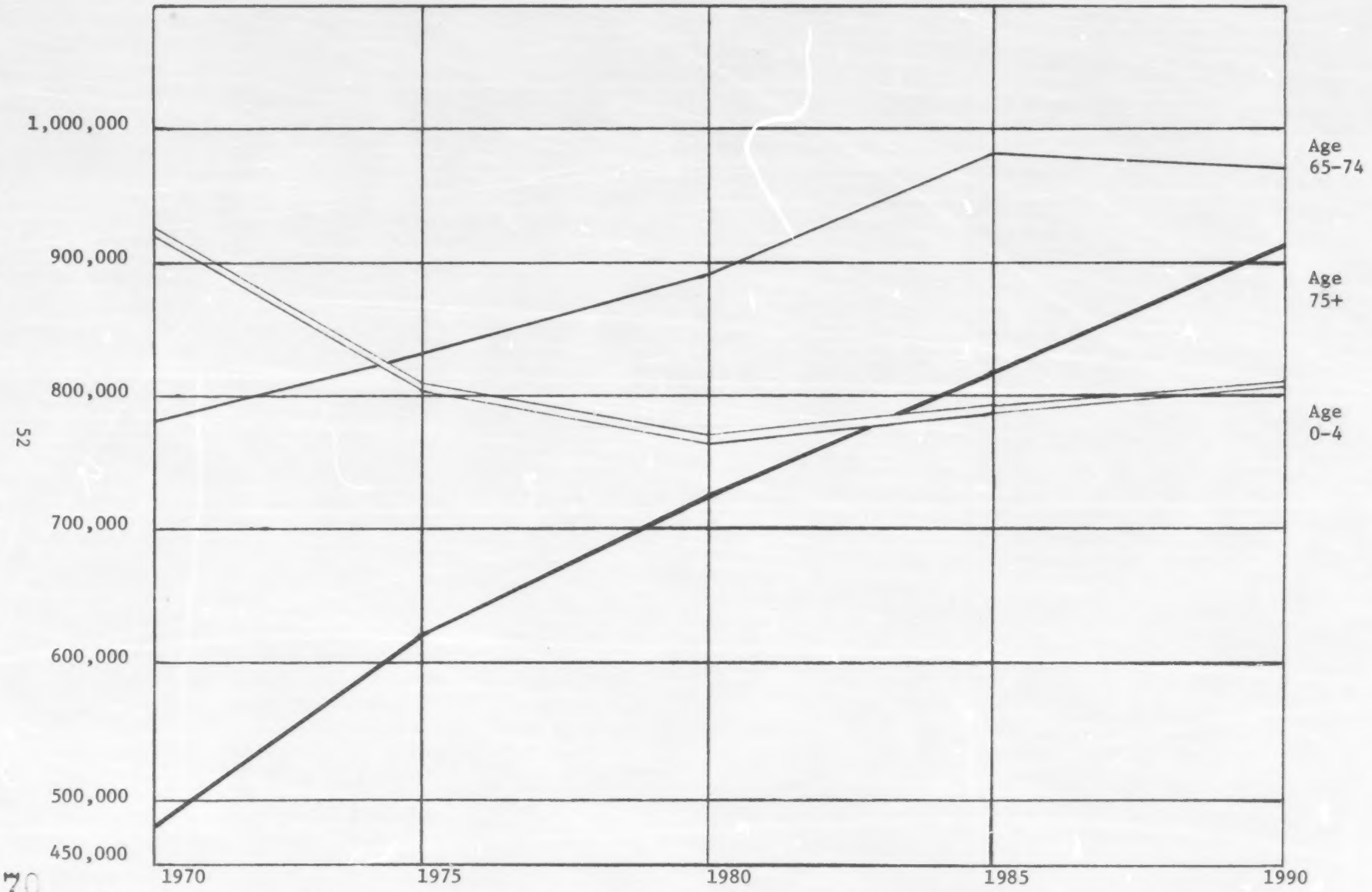
[a]John Senier. Population Projections for Pennsylvania and Counties, 1970-2000. Bureau of Information Systems, Pennsylvania Department of Education, Harrisburg, Pa., September 1975.

To indicate projected population increases among the elderly in Pennsylvania, the decade ending in 1990 has been intentionally chosen because growth in this age classification may stabilize around this time. It is reasonable to assume, then, that a crucial period for manpower planning to staff nursing homes should begin now. Figure 4 highlights this urgency without statistical elaboration. It should be noted in the figure that the rate of increase in elderly population will accelerate rapidly during the five-year period 1980-1985.

Age cohort 0-4 years was inserted in Figure 4 mainly for comparison. In general a decline in the more youthful age cohorts can be expected through 1990. This may have an adverse impact on the sources of manpower to fill the needs as health care providers. Equally significant is the fact that the anticipated decrease in a youthful population will peak during a time when energy, creativeness and innovation, so often found in young adults, will be needed to deal with problems related to the aging.

Figure 4

Pennsylvania Population Trends, Select Age Groups 1970-1990[a]



[a]John Senier, Population Projections for Pennsylvania and Counties 1970-2000, Bureau of Information Systems Pennsylvania Department of Education, Harrisburg, Pa., 1975.

CHAPTER VII

PENNSYLVANIA'S PROGRAMS IN NURSING EDUCATION

A. Overview of Nursing Services and Nursing Education

This portion of the report concentrates on nursing services which, of all the health-occupation categories, comprise the bulk of professional and technical employes in the health field.

The report examines the three major groups that provide nursing services: (1) registered (or professional) nurses, (2) licensed practical (or vocational) nurses and (3) nurses' aides. The occupation of nurses' aide is mentioned only briefly, since this occupation has little impact at this time on postsecondary education as such. However, these workers do provide important patient services and do perform routine but valuable tasks, particularly in hospitals and nursing homes. Their numbers have increased along with the need for professionally and technically prepared personnel in the health field generally. Their services will become even more significant as future demands for better health care increase.

Registered nurses are prominent in this report for several reasons. Foremost is the rapid increase in professional nursing programs initiated, developed or broadened by our colleges and universities since 1963, coupled with a fairly rapid decline in hospital-based programs. Furthermore, depending on the source, there is increasing apprehension about the possibility of a nationwide oversupply of registered nurses which may be realized long before the end of this century. There is also a growing anxiety about new roles, directions or alternatives open to the profession. Many traditional professional nursing responsibilities, it appears, have been or are being relinquished to licensed practical nurses.

These are but a few of the ambiguities and problems currently facing professional nurses and especially the nursing leadership charged with seeking solutions to these dilemmas. This report does not offer solutions to the enigmas confronting professional nursing; the problems are being brought forward only to provide a background from which to realistically view nursing services as a whole.

Finally, some data on practical nursing is provided. That occupation has been growing in terms of employment, and postsecondary institutions appear to be showing greater interest in promoting and expanding it. Like professional nursing, practical nursing is at a crossroads, especially where higher education's involvement is concerned. That is, program and curriculum decisions should be given high priority action. Because of the interaction of practical nursing with professional nursing, efforts to upgrade (or to stabilize) practical nurse job requirements through curriculum reform should be carefully considered and evaluated. Although not dealt with in detail in this report, other crucial issues are important to the professional and practical nursing areas:

- Nursing has been considered a predominantly female occupation. Efforts should be made to explore ways to attract males to the four different types of nursing programs (baccalaureate, associate degree, diploma and practical nursing).

- There is evidence of a geographic maldistribution of professional nurses not unlike that for physicians.

- There appear to be too few professional nurses aspiring to Ph.D. or equivalent programs relative to the current need for teaching faculty in nursing education at the college level.

B. Nursing Program Trends for Pennsylvania

Figure 5 summarizes the trends in Pennsylvania nursing programs since 1923.[17] The hospital-based diploma nursing program presents the area for greatest concern. Diploma programs dropped from 180 in 1923 to 61 in 1976 (a 66 per cent decrease in 53 years). However, a more crucial drop from 83 to 61 programs occurred during the period 1973-1976 (a 26 per cent decrease in three years). Eight institutions have signified that they will close their diploma programs sometime during the period 1977-1980, with the prospect that this figure will eventually prove to be even greater.

In contrast, baccalaureate and associate degree nursing programs have been increasing, but at a much slower pace than the diploma program decline. In 1923 there was one baccalaureate program in existence, and there were no associate degree programs. By 1976 there were 21 baccalaureate and 17 associate degree programs. Obviously, this shift to higher education training will, in some instances, affect the degree of ready access to professional nursing education in some regions, depending on where programs are closed or new ones are opened.

Practical nursing programs conducted in hospitals, community colleges and vocational schools have increased considerably during 1953-1976. In 1953 there were 11 such programs, whereas currently there are 52. The title "nurse attendant" (NA) appearing in Figure 5 was then equivalent to today's practical nurse. Since 1973 there has been, however, been a decline in practical nursing program offerings from a high of 59 to 52 in 1976, but this three-year period is too short to make an assumption of a downward trend.

Table 18 lists the 69 registered nurse programs offered by hospitals as of October 1975. Eight of these hospitals will have closed their programs by the end of 1976. New students will not be admitted, but the programs will continue until those currently enrolled move on (generally through graduation). Student access to this form of postsecondary education will, of course, be affected by these closings. During 1977 two other hospitals will begin to phase out their programs, while one more has indicated its intention to close during 1978. Five others have already indicated they will close before the end of the decade.

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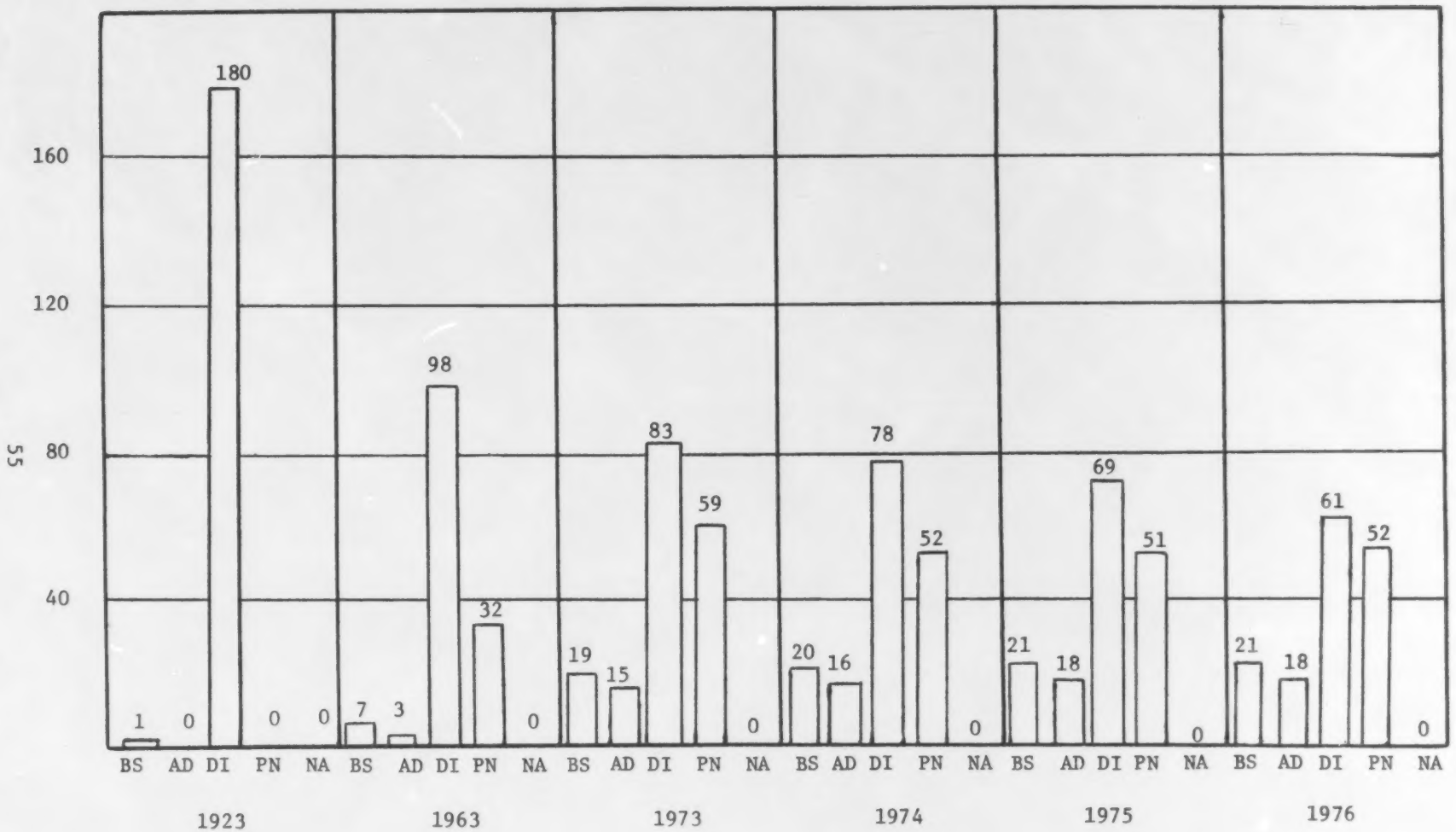
17 "Type of Advance Nursing Programs," Pennsylvania State Board of Nurse Examiners, Harrisburg, Pa., 1977.

Figure 5

Types of Advanced Nursing Programs and Number in Existence in Pennsylvania 1923-1976[a]



[a] Data obtained from Pennsylvania State Board of Nurse Examiners, Harrisburg, Pa., 1977.

Abbreviations

BS--Baccalaureate Degree Nursing Program
AD--Associate Degree Nursing Program
DI--Diploma Nursing Program
PN--Practical Nursing Program
NA--Nurse Attendant Program

Table 18

Registered Nurse Programs Offered in Pennsylvania
Hospital Diploma Schools of Nursing, 1975[a]

Registered Nurse Programs	Length of Program (Months)	Admission to Class in 1975	Current Enrollment	Graduates 8/31/75
Abington Memorial Hospital	30	60	95	45
Albert Einstein Memorial Center	24	109	82	64
Allegheny Valley Hospital	30	N/R	35	27
Allentown Hospital	33	79	137	70
Altoona Hospital	33	30	81	54
Ashland State Hospital	33	26	39	20
Bryn Mawr Hospital	33	63	120	55
Bucks County - Grand View	12	30	N/R	28
Chester County Hospital	36	42	66	30
Chestnut Hill Hospital	34	32	53	24
Citizens General Hospital	30	49	85	51
Coatesville Hospital	33	47	70	34
*Columbia Hospital	30	N/R	28	26
Community Medical Center	31	30	44	25
Conemaugh Valley Memorial Hospital	34	48	85	52
Episcopal Hospital	24	46	22	24
Frankford Hospital	30	53	67	43
Geisinger Medical Center	24	76	65	66
Germantown Hospital	36	38	51	21
*Hamot Medical Center	28	N/R	104	41
*Harrisburg Polyclinic Hospital	27	N/R	77	61
Hazleton State General Hospital	33	42	72	33
Hospital of Medical College of Pennsylvania	29	36	58	32
***Hospital of University of Pennsylvania	31	122	189	100
Indiana Hospital	33.5	27	46	19
Jameson Memorial Hospital	31	47	72	34
Lancaster General Hospital	33	91	240	81
Lankenau Hospital	32	81	127	63
*Montefiore Hospital, L.S. Kaufman	30	N/R	54	56

*Closing 1976 (6 schools)
**Closing 1977 (2 schools)
***Closing 1978 (1 school)

Note: In 1973, there were 79 schools graduating 2,941 registered nurses.
In 1974, there were 74 schools graduating 3,116 registered nurses.
In 1975, there were 69 schools graduating 2,951 registered nurses.

[a]Pennsylvania State Board of Nurse Examiners, Unpublished data, Harrisburg, Pa., October 1975.

Abbreviation N/R means not reported.

Table 18 (Cont'd)

Registered Nurse Programs	Length of Program (Months)	Admission to Class in 1975	Current Enrollment	Graduates 8/31/75
St. Margaret Hospital, Lilianes McClintic	27	45	70	28
Memorial Hospital - Roxborough	30	34	53	30
Mercy Hospital, Altoona	33	29	47	19
Mercy Hospital, Pittsburgh	24	95	86	72
Mercy Hospital, Scranton	34	38	65	25
Methodist Hospital	29	40	68	25
Montgomery Hospital	30	N/R	39	38
Northeast Hospital	33	25	45	22
Ohio Valley General Hospital	30	26	36	6
Philadelphia General Hospital	22	129	104	80
Philipsburg State General Hospital	33	29	65	27
*Pittsburgh Hospital	30	N/R	40	43
Pittston Hospital	36	27	56	18
*Pottstown Hospital	36	N/R	12	16
Pottsville Hospital	33	48	78	34
Presbyterian University of Pennsylvania Medical College	33	34	58	53
Reading Hospital	32	85	144	79
Robert Packer Hospital	33	63	93	45
Sacred Heart Hospital	33	60	88	40
St. Agnes Hospital	31	28	55	35
St. Francis General Hospital	22	85	69	47
St. Francis Hospital of New Castle	29	36	73	35
St. John's General Hospital	30	33	32	15
**St. Joseph's Hospital, Carbondale	27	66	40	23
St. Joseph Hospital, Lancaster	27	50	76	39
**St. Joseph's Hospital, Philadelphia	30	N/R	43	32
St. Joseph's Hospital, Reading	28	52	80	35
St. Luke's Hospital	24	75	68	67
Saint Vincent Health Center	22	71	28	30
Scranton State General Hospital	28	39	63	37
Sewickley Valley Hospital	30	43	89	48
Shadyside Hospital	24	60	104	54
Sharon General Hospital	33	50	84	44
South Side Hospital	30	30	50	36
Thomas Jefferson University	33	110	188	85
Uniontown Hospital	36	36	60	38
Washington Hospital	24	99	89	95
Western Pennsylvania Hospital	29	78	150	60
Williamsport Hospital	33.5	49	77	39
York Hospital	32	129	189	64
69 Institutions	Range: 12-36 months Average: 30.0 months	3,290	5,524[b]	2,951[b]

[b]Total figures include students who are enrolled in or working toward graduation from nursing school programs which were closed during previous year.

Institutions presently planning to phase out their programs are:

Hospital	Year Closing	Location	County
St. Joseph's Hospital	1977	Carbondale	Lackawanna
St. Joseph's Hospital	1977	Philadelphia	Philadelphia
Hospital of the University of Pennsylvania	1978	Philadelphia	Philadelphia
Bucks County Grand View	Before 1980	Sellersville	Bucks
Conemaugh Valley Memorial	Before 1980	Johnstown	Cambria
Philadelphia General	Before 1980	Philadelphia	Philadelphia
Scranton State General	Before 1980	Scranton	Lackawanna
York	Before 1980	York	York

Despite the rising number of diploma programs phased out from 1973 to 1976, a substantial number of students were graduated from hospital programs:[18]

Year	Number of Hospital Schools	Diploma Graduates
1973	83	2,941
1974	78	3,116
1975	69	2,951

It is to be expected that the number of graduates from hospital schools will decline rapidly in succeeding years as more schools are closed.

Hospital programs in professional nursing and practical nursing are being dropped for sound financial reasons, but other educational alternatives for practical nurses have not yet been developed as fully as they have been for registered nurses. Higher education may, therefore, find itself playing a larger role in the training of practical nurses at the two-year community college level, particularly as the number of persons over age 65 increases.

C. Baccalaureate and Associate Degree Nursing Programs

Twenty-one colleges and universities conducted baccalaureate degree nursing programs in 1975 (Table 19). Eighteen institutions of higher education, mainly two-year colleges, offered associate degree programs in 1975 (Table 20). As indicated earlier, higher education institutions have become increasingly involved in nursing program

[18] Pennsylvania State Board of Nurse Examiners, Harrisburg, Pa., 1975.

sponsorship.[19] Furthermore, trends in recent years indicate that colleges and universities may eventually dominate sponsorship of and responsibility for the professional education of nurses with a marked increase in the awarding of baccalaureate and associate degrees at the four-year and two-year college levels. The trend toward higher education's domination of education leading to a career in professional nursing is reflected in the recent substantial increase in the number of college-level students meeting the requirements for a professional degree. Trends are shown separately for baccalaureate and associate degrees in Tables 19 and 20. They are summarized below as one category in a comparison with diplomas from hospital schools of nursing from 1973-1975:

Total Professional Awards in Professional Nursing				
		College/University	Per Cent	
Year	Hospital Diploma	Degrees	Diploma	Degree
1973	2,941	1,382	68	32
1974	3,116	1,696	65	35
1975	2,951	1,977	60	40

It is clear that as the baccalaureate and associate degree programs continue to develop and attract more students, and as the "new programs" (reflected in Tables 19 and 20) begin to gain enrollment momentum, higher education institutions will become the dominant force in nursing education.

Some implications are immediately evident when these trends are more closely analyzed. First, articulation in student transfer might be made simpler for associate degree recipients aspiring to a higher degree. Second, colleges and universities will have to become familiar with the accepted practices, standards and procedures in use by hospitals and teach accordingly. Third, job placement for nurses seeking immediate employment after graduation may require special consideration, since hospitals will no longer educate and train nurses for employment within their own institutions. In essence, it is felt that changes in the education setting from the hospital to the university or college will bring about changes in nurse preparation that may or may not be appropriate to the realities of the health care delivery system wtihout careful articulation between health care educators and health care deliverers.

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19 Ibid.

Table 19

Baccalaureate Degree Nursing Programs Offered in Pennsylvania Higher Education Institutions, 1973-1975[a]

General Baccalaureate Programs	Length of Program (Months)	Admission to Class in 1975	1975 Enrollment	Graduates 9/1/73	Graduates 8/31/74	Graduates 8/31/75
Albright College	45	30	116	New Program	19	14
Allentown College of St. Francis DeSales	36	26	19	--------New Program----------		
Carlow College	38	118	234	48	36	38
Cedar Crest College	36	50	43	--------New Program----------		
College Misericordia	36	60	282	22	26	73
Duquesne University	32	105	451	51	80	111
East Stroudsburg State College	36	30	90	--------New Program----------		
Edinboro State College	36	82	114	New Program	2	11
Holy Family College	36	38	112	5	13	14
Indiana University of Pennsylvania	38	75	230	55	65	63
Our Lady of Angels College	24	N/R	85	10	17	22
The Pennsylvania State University	30	125	572	113	142	177
Temple University	36	69	61	47	57	59
Thomas Jefferson University	18	66	61	New Program	40	56
University of Pennsylvania	45	63	309	112	114	115
University of Pittsburgh	36	214	495	147	146	168
Villa Maria College	36	52	130	20	37	18
Villanova University	32	183	465	75	99	113
West Chester State College	36	58	148	--------New Program----------		
Widener College	36	68	257	28	26	67
Wilkes College	34	127	126	----------New Program----------		
21 INSTITUTIONS	Range: 18-45 Months Average: 34.8 Months	1,639	4,400	733	919	1,119

[a] Pennsylvania State Board of Nurse Examiners, Unpublished data, Harrisburg, Pa., October 1975.

Abbreviation N/R indicates not reported.

Table 20

Associate Degree Nursing Programs Offered in Pennsylvania Higher Education Institutions, 1973-1975[a]

Associate Degree Programs	Length of Program (Months)	Admission to Class in 1975	1975 Enrollment	Graduates 9/1/73	Graduates 8/31/74	Graduates 8/31/75
Behrend Campus, The Pennsylvania State University	18	54	N/R	--------New Program---------		
Bucks County Community College	16	99	80	45	49	59
Butler County Community College	24	44	N/R	New Program	33	30
Community College of Allegheny County--Allegheny Campus	20	110	106	80	101	86
Community College of Allegheny County--South Campus	20	135	86	74	85	81
Community College of Beaver County	19.5	183	56	59	52	49
Community College of Philadelphia	18	125	87	81	80	88
Delaware County Community College	16	84	68	60	64	51
Gwynedd-Mercy College	18	100	83	91	99	130
Hahnemann Medical College and Hospital	18	98	98	--------New Program---------		
Harrisburg Area Community College	16	80	56	49	62	42
Luzerne County Community College	18	120	68	----New Program----		49
Montgomery County Community College	21	50	49	19	41	36
Mt. Aloysius Junior College	21	60	52	34	48	52
Northampton County Area Community College	18	28	42	32	42	41
Reading Area Community College	18	49	0	-------New Program----------		
Venango Campus--Clarion State College	18	34	30	25	21	27
Westmoreland County Community College	15	35	23	----New Program----		37
18 INSTITUTIONS	Range: 15-24 Months Average: 18.4 Months	1,488	984	649	777	858

[a]Pennsylvania State Board of Nurse Examiners, Unpublished data, Harrisburg, Pa., October 1975.

Abbreviation N/R means not reported.

CHAPTER VIII

INVENTORY OF PENNSYLVANIA'S REGISTERED NURSES

A. An Overview

A recent publication entitled Pennsylvania's Nurses: 1972 Inventory of Registered Nurses[20] provides a great deal of comprehensive data on Pennsylvania's registered nurses. Some of the information found in this publication has, therefore, been condensed and arranged to fit the purposes of this report. This information appears in tabular form on succeeding pages.

It is common knowledge that registered nurses have been in comparatively high demand, throughout the nation, for several decades. This demand has resulted in a proliferation of professional nursing programs generally under the auspices of hospitals. However, as noted earlier, hospitals have been withdrawing their support of such programs. This withdrawal has been accelerating at an alarming rate. Colleges and universities in the Commonwealth have been assuming responsibility for some of the professional nursing programs because of necessity and institutional expediency. Despite this on-going change to a higher education setting, hospital-based programs still predominate over higher education nursing programs in terms of their number. This situation may, however, be reversed in the near future. In light of this possibility, some caution should be exercised by higher education institutions with such programs in operation or by those institutions planning to develop new professional nursing programs. Caution is certainly indicated when one considers recent federal projections concerning a nationwide oversupply of professional nurses by 1980.[21] If an oversupply of professional nurses does materialize, the impact on those Pennsylvania institutions sponsoring nursing programs would be profound. Pennsylvania now ranks third in the nation in the number of professional nurses residing within its borders. New York and California rank first and second, in that order, in the number of professional nurses residing there (about 30 per cent of all professional nurses live in these three states). Obviously, Pennsylvania cannot continue to increase its output of nurses indefinitely without creating an oversupply. Furthermore, an oversupply will not resolve the national or state maldistribution of nurses because: (1) nurses tend to seek employment close to their homes rather than migrate; and (2) nurse maldistribution is partially a function of physician maldistribution. Physician maldistribution remains a recalcitrant problem.

Furthermore, it is expected that the supply of active physicians will come into closer balance with their requirements by 1980.[22] Should this occur, there will probably then be diminishing demands for professional nurses as well as other health manpower personnel. This graphic presentation in Figure 6 summarizes the projected supply and demand of professional nurses in comparison with that of physicians, by 1980.

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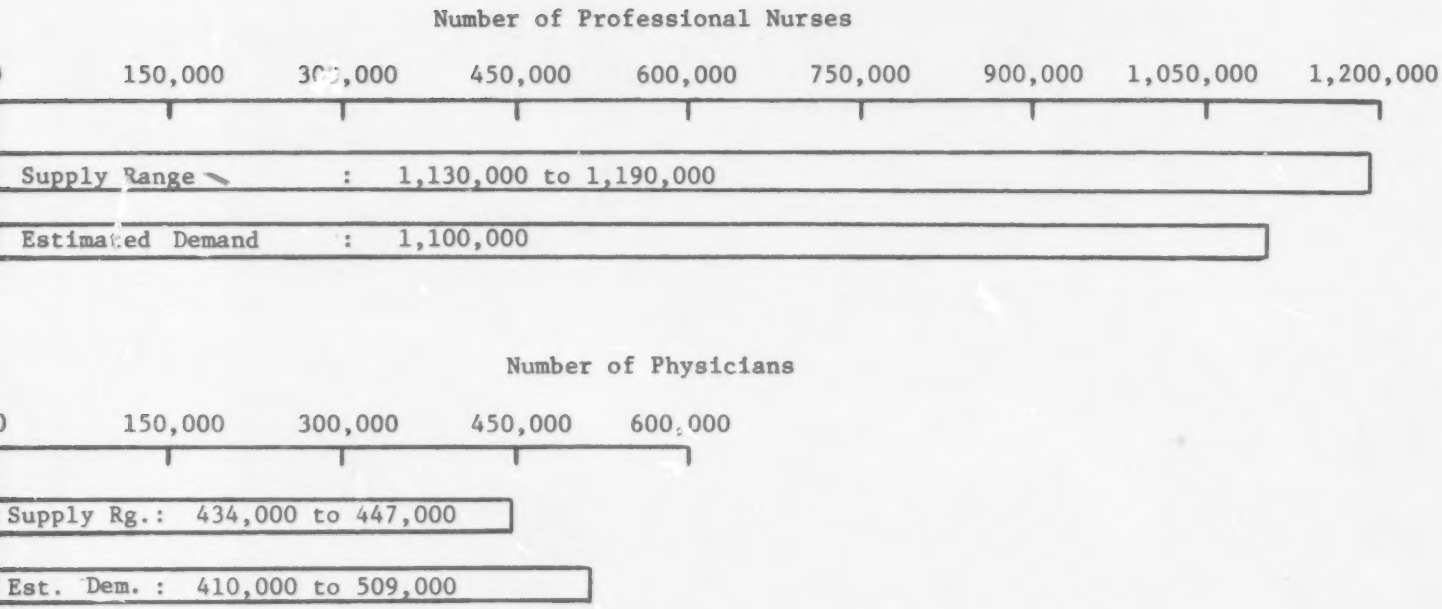
20 Ruth Morgan and Margaret M. Balog, Pennsylvania's Nurses: 1972 Inventory of Registered Nurses, Division of Public Health Nursing, Pennsylvania Department of Health, Harrisburg, Pa., 1975.

21 Health Manpower Issues: A Presentation at the White House, November 13, 1975, Department of Health, Education and Welfare, Public Health Service, Bureau of Health Manpower, Washington, D.C., 1975.

22 Ibid.

Figure 6

Comparison of Supply and Demand Projections for Professional Nurses and Physicians in the United States, 1980[a]



[a]Health Manpower Issues: A Presentation at the White House, November 13, 1975, Department of Health, Education and Welfare, Public Health Service, Bureau of Health Manpower, Washington, D.C., 1975.

B. Distribution of Professional Nurses in Pennsylvania: 1972 Inventory

Table 21 shows 1972 data relating to full-time and part-time employed professional (registered) nurses, compared to inactive nurses, by county.[23] It should be noted that only about six of 10 professional nurses in the state (61.1 per cent) are shown to be actively engaged in the profession. The numbers of professional nurses employed and unemployed with their respective percentages are summarized below:

Category	Number	Per Cent
Full-time employed	38,438	39.9
Part-time employed	20,427	21.1
Inactive*	37,549	38.9
TOTAL	96,414	100.0

*Includes 4,761 nurses whose employment status is unknown and presumed to be inactive.

It is evident from the above that individuals possessing professional nursing skills are not now being fully and effectively used. Among the factors contributing to this somewhat low full-time utilization rate are (1) a personel preference for other activity, including homemaking and family concerns; (2) inadequate salaries; (3) unfavorable and/or inadequate employment opportunities; and (4) partial or total retirement due to age. The number of nurses engaged in part-time employment is relatively high. This group may have a personal preference for working part-time, or they may be working in order to supplement the family income.

There appears to be a growing trend among prospective employers to require nurses to take refresher courses if they have been inactive for five or more years. Rapid technological changes and newly developed nursing techniques, combined with unmet demand, have forced the adoption of such measures by employers. Unlike some other professions, however, adequate and advanced continuing education programs, mandated by the state and specifically designed to update nursing skills, have not been available to the nursing profession. Refresher courses and continued education have, therefore, not been readily available to nurses unless employers in a given area have felt the need to require them.

Figure 7 graphically illustrates the varying ratio of employed professional nurses to 100,000 population by county. Using Carbon County as a median (444 nurses with a county rank of 34 out of 67), it is found that 17 counties in the top 25 per cent range from 2,034 nurses per 100,000 population in Montour County to 567 in Allegheny County. Fifty per cent, or 33 counties, come within the middle range. These include Columbia County (562 nurses per 100,000, with a rank of 18) to Indiana County (326 nurses per 100,000, with a rank of 50). The bottom 25 per cent includes 17 counties with a range of only 321 to 114 employed nurses per 100,000 population. These include Perry, Juniata, Forest and Sullivan counties, with the lowest ranking of 64, 65, 66 and 67, respectively. There are, in fact, no hospitals in the latter four counties. As might be expected, the majority of nurses appear to concentrate where hospitals are located. As a result, the geographic distribution of nurses generally correlates closely with the geographic distribution of hospitals, as evidenced by the extremes of the highest ranking, Montour County (in which Geisinger Medical Center is located), and the lowest ranking, Sullivan County (where there are no hospitals).

Detailed data concerning employed professional nurse-population rankings by county appear in Appendix J.

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[23] Morgan, op. cit.

Table 21

Employed and Inactive Registered Nurses by County in Pennsylvania, 1972[a]

County	Total	Employed		Inactive	Per Cent Inactive
		Full-Time	Part-Time		
Adams	277	111	82	84	30.3
Allegheny	13,038	6,182	2,759	4,097	31.4
Armstrong	360	142	90	128	35.6
Beaver	1,272	582	253	437	34.4
Bedford	190	74	50	66	34.7
Berks	2,422	1,025	500	897	37.0
Blair	1,239	584	267	388	31.3
Bradford	509	240	132	137	27.0
Bucks	2,511	763	688	1,060	42.2
Butler	1,025	405	219	401	39.1
Cambria	1,642	724	420	498	30.3
Cameron	25	11	6	8	32.0
Carbon	373	141	85	147	39.4
Centre	754	290	181	283	37.5
Chester	2,387	894	481	1,012	42.4
Clarion	147	50	47	50	34.0
Clearfield	550	237	126	187	34.0
Clinton	216	93	57	66	30.5
Columbia	469	175	145	149	32.0
Crawford	610	245	189	176	29.0
Cumberland	1,246	428	303	515	41.3
Dauphin	2,314	1,078	492	744	32.2
Delaware	3,741	1,497	1,002	1,242	33.2
Elk	316	134	98	84	26.6
Erie	2,000	785	516	699	35.0
Fayette	820	400	140	280	34.1
Forest	18	3	3	12	66.6
Franklin	565	253	122	190	33.6
Fulton	46	18	15	13	28.2
Greene	149	84	26	39	26.1

(Cont'd)

[a]Ruth Morgan and Margaret M. Balog, Pennsylvania's Nurses: 1972 Inventory of Registered Nurses, Division of Public Health Nursing, Pennsylvania Department of Health, Harrisburg, Pa., 1975.

*Includes 4,761 who did not report activity status.

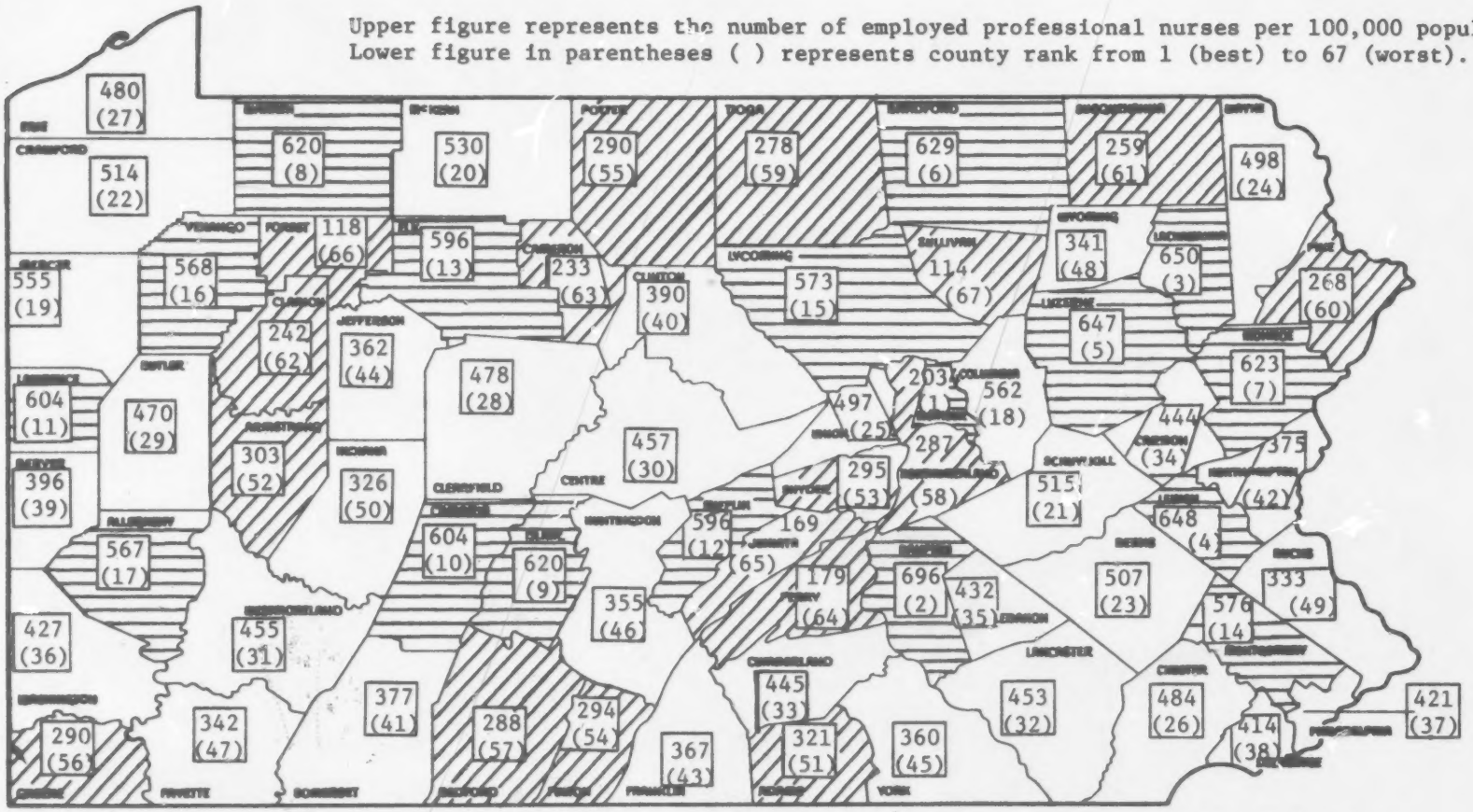
Table 21 (Cont'd)

County	Total	Employed		Inactive	Per Cent Inactive
		Full-Time	Part-Time		
Huntingdon	218	104	40	74	34.0
Indiana	452	202	66	184	40.7
Jefferson	244	99	62	83	34.0
Juniata	59	18	12	29	49.1
Lackawanna	2,192	930	606	656	30.0
Lancaster	2,379	904	600	875	37.0
Lawrence	934	351	297	286	30.6
Lebanon	614	294	151	169	27.5
Lehigh	2,505	1,075	598	832	33.2
Luzerne	3,456	1,469	782	1,205	35.0
Lycoming	979	407	249	323	33.0
McKean	411	154	126	131	32.0
Mercer	985	423	300	262	26.6
Mifflin	368	179	91	98	26.6
Monroe	426	161	136	129	30.3
Montgomery	5,566	2,004	1,608	1,954	35.1
Montour	450	252	102	96	21.3
Northampton	1,524	553	273	698	45.8
Northumberland	547	185	105	257	47.0
Perry	103	31	24	48	46.6
Philadelphia	10,120	6,100	1,925	2,095	20.7
Pike	58	16	18	24	41.4
Potter	72	34	16	22	30.5
Schuylkill	1,317	594	245	478	36.3
Snyder	126	54	38	34	27.0
Somerset	450	186	111	153	34.0
Sullivan	18	6	1	11	61.1
Susquehanna	162	47	47	68	42.0
Tioga	191	74	41	76	40.0
Union	207	79	69	59	28.5
Venango	573	211	152	210	36.6
Warren	418	201	103	114	27.3
Washington	1,343	617	305	421	31.3
Wayne	241	87	70	84	34.8
Westmoreland	2,781	1,084	651	1,046	37.6
Wyoming	124	41	30	53	42.7
York	1,588	661	348	579	36.4
County Not Specified	10,982	903	535	9,544*	87.0
Pennsylvania Total	96,414	38,438	20,427	37,549*	38.9

Figure 7

Employed Professional Nurses Per 100,000 Population, 1972[a]

Upper figure represents the number of employed professional nurses per 100,000 population.
Lower figure in parentheses ( ) represents county rank from 1 (best) to 67 (worst).



Legend	Number of Counties	Range of Nurses Per 100,000 Population
Top 25 per cent	17	2,034 to 567
Middle 50 per cent	33	562 to 326
Bottom 25 per cent	17	321 to 114

[a]Ruth Morgan and Margaret M. Balog, Pennsylvania Nurses: 1972 Inventory of Registered Nurses, Division of Public Health Nursing, Pennsylvania Department of Health, Harrisburg, Pa., 1975.

C. Professional Nurses' Educational Attainment (derived from the 1972 Inventory of Pennsylvania Nurses

The 1972 Inventory of Registered Nurses in Pennsylvania indicates that 91.1 per cent received their professional preparation through hospital-based diploma programs. About 1.3 per cent graduated from associate degree programs and 7.6 per cent graduated from baccalaureate degree programs.[24] The professional education background of registered nurses in Pennsylvania compared with 1972 national percentages is summarized below:

Basic Professional Education	Number in Pennsylvania	Per Cent PA	Per Cent U.S.[25]
Diploma	87,801	91.1	71.1
Associate Degree	1,269	1.3	4.3
Baccalaureate Degree	7,344	7.6	11.8
Not Reported, Other Field and/or Not Determined			12.8
TOTAL	96,414	100.0	100.0

The above comparison shows Pennsylvania to be significantly higher in the proportion of hospital-based (diploma) graduates. However, it should be remembered that the number of hospital-based programs in the Commonwealth has been declining; therefore, a substantial reduction in the number of nurses completing this program can be expected in the future. Conversely, present and future expansion of program offerings leading to associate and baccalaureate degrees will increase the number of nurses in these categories.

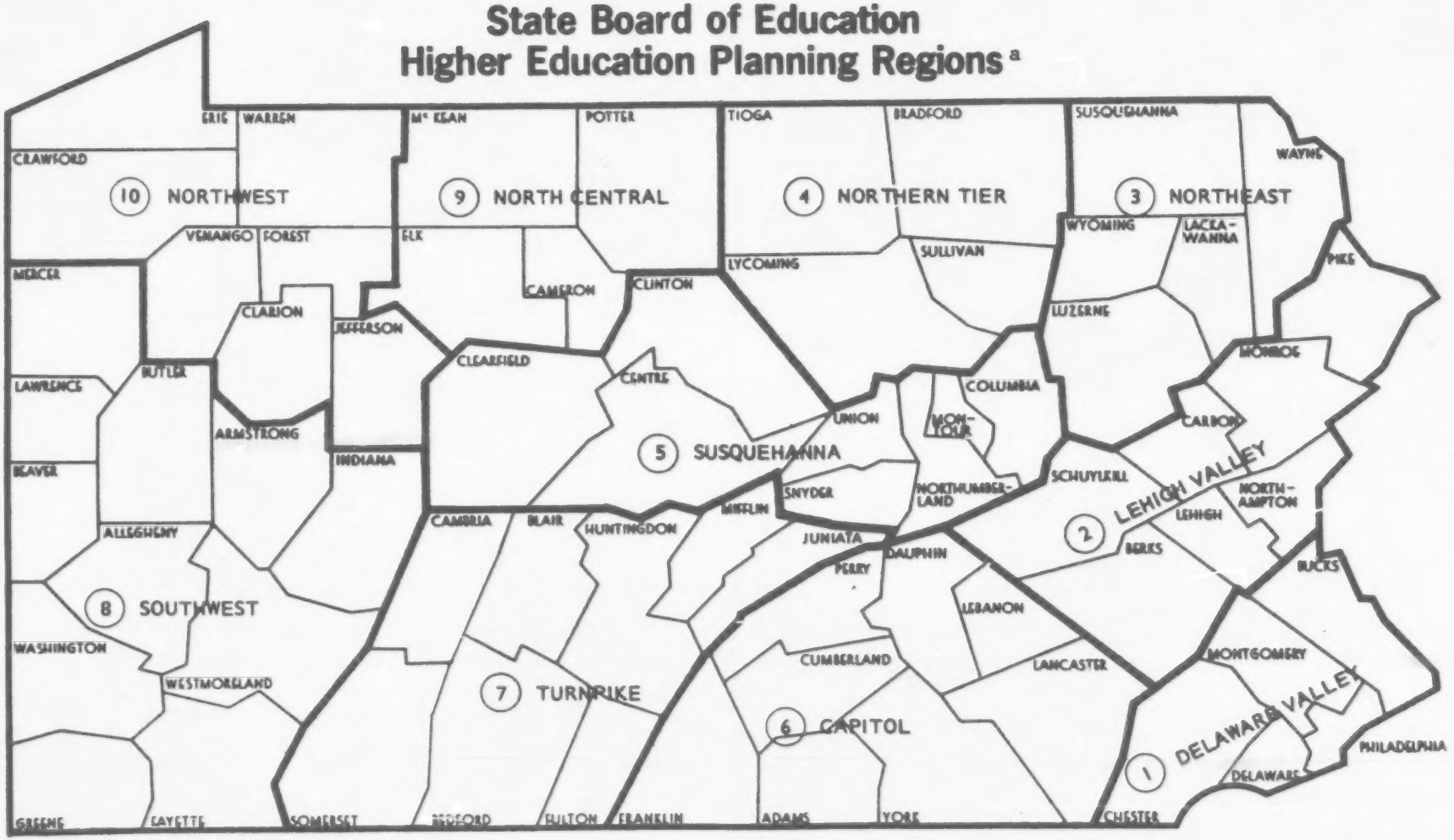
Basic professional preparation of nurses, when viewed from Pennsylvania's 10 higher education planning regions (see Figure 8), also provides additional information. The regional data may be summarized as follows:

Higher Education Region	Total Nurses	Per Cent Diploma	Per Cent Associate Degree	Per Cent Baccalaureate Degree Nursing
1	24,325	88.0	2.0	10.0
2	8,625	94.0	0.7	5.3
3	6,175	93.5	0.8	5.7
4	1,697	94.4	0.5	5.1
5	3,319	94.1	0.6	5.3
6	9,086	91.8	0.9	7.3
7	4,212	94.5	1.3	4.2
8	23,159	89.9	1.4	8.7
9	824	93.4	0.5	6.1
10	4,010	91.3	1.2	7.5
County/Region Not Specified	10,982	93.2	1.1	5.7
Pennsylvania	96,414	91.1	1.3	7.6

[24] Morgan, op. cit.

[25] Facts about Nursing, 74-75, American Nurses' Association, Kansas City, Mo., 1976.

Figure 8



[a]A Design for Regionalization in Higher Education, Pennsylvania Department of Education, Harrisburg, Pa., 1973.

Regions 1 and 8 (the Philadelphia and Pittsburgh areas, respectively) have about one-half of all professional nurses residing within their boundaries. Both of these regions also have the greatest percentages of nurses obtaining the baccalaureate degree as their initial nursing preparation. Since baccalaureate nursing graduates are more inclined to work toward a graduate degree, nurses having limited accessibility to institutions offering baccalaureate nursing degrees may be discouraged from pursuing graduate work in nursing or other fields.[26] The data appearing below summarize the number of colleges and universities offering baccalaureate nursing degrees in 1974:

Region	Number
1	8
2	3
3	2
4	0
5	1
6	0
7	0
8	4
9	0
10	2
Total 1974:	20

The number and percentage of nurses who have obtained a baccalaureate or higher degree appears below. The percentages in parentheses are estimates when the (Unknown) category of highest degree held is prorated in Pennsylvania and the United States.

Highest Degree Held	Total	Per Cent Pennsylvania		Per Cent U.S.	
Less than baccalaureate degree	63,059	65.4	(83.5)	75.4	(81.6)
Baccalaureate degree, nursing	7,565	7.8	(10.0)	11.8	(12.8)
Baccalaureate degree, other	2,464	2.6	(3.3)	2.2	(2.4)
Masters degree, nursing	1,143	1.2	(1.5)	1.9	(2.0)
Masters degree, other	1,195	1.2	(1.6)	1.0	(1.1)
Doctorate	94	0.1	(0.1)	0.1	(0.1)
Unknown	20,894	21.7	-	7.6	-
	96,414	100.0	(100.0)	100.0	(100.0)

It should be noted here that about 13 per cent of Pennsylvania's nurses and 17 per cent of the nurses nationwide attained a baccalaureate or higher degree. The margin of comparison is narrowed somewhat to 16.5 per cent and 18.4 per cent, respectively, when the estimated "true" percentages (appearing in parentheses) are considered.

26 Morgan, op. cit., p. 5.

Table 22 reflects, in some detail, Pennsylvania higher education regional data concerning the highest degree attained. Appendices K, L and M also contain information relating to basic nursing education preparation and highest degree held by county rather than region. The aforementioned appendices differ only in that they detail respectively the professional preparation of full-time, part-time and inactive registered nurses.

Table 22

Highest Degree Held by Professional Nurses by Higher Education Regions in Pennsylvania, 1972 [a]

Higher Education Region	Total Nurses	Less Than Baccalaureate Degree	Baccalaureate Nursing Degree	Baccalaureate Degree (Other)	Masters Degree Nursing	Masters Degree (Other)	Doctorate	Degree Unknown
1	24,325	64.5	10.0	3.6	1.7	1.5	0.1	18.6
2	8,625	70.0	6.0	2.5	0.8	1.1	0.0	19.6
3	6,175	69.2	7.2	1.4	0.8	1.1	0.0	20.3
4	1,697	69.0	5.3	2.7	0.8	0.7	0.0	21.5
5	3,319	69.7	5.9	2.6	0.6	0.6	0.1	20.5
6	9,086	67.8	7.7	2.6	0.8	1.2	0.0	19.9
7	4,212	73.2	4.7	2.0	0.7	0.7	0.0	18.7
8	23,159	69.0	8.3	2.6	1.4	1.7	0.1	16.9
9	824	72.6	6.2	1.0	0.4	0.5	0.0	19.3
10	4,010	69.9	7.7	2.0	1.0	0.9	0.1	18.4
County/Regions Not Specified	10,982	45.2	6.6	1.4	0.7	0.7	0.1	45.3
Pennsylvania	96,414	65.2	7.8	2.6	1.2	1.2	0.1	21.7

[a] Ruth Morgan and Margaret M. Balog, Pennsylvania's Nurses: 1972 Inventory of Registered Nurses, Division of Public Health Nursing, Pennsylvania Department of Health, Harrisburg, Pa., 1975.

CHAPTER IX

PRACTICAL NURSING

A. Practical Nursing Programs

In 1975 there were 51 practical nursing programs in Pennsylvania.[27] Details concerning these programs appear in Tables 23, 24 and 25. Pertinent data related to all three tables are summarized below:

Practical Nursing Programs and Graduates, 1974-1975

Type	Number	Graduates 1974	Graduates 1975
Hospital	8	255	266
Community College	8	517	469
Area Vocational/Technical Schools	35*	1,836	1,810
TOTAL	51	2,608	2,545

*In 1976, Warren County Area Vocational-Technical School implemented a practical nursing program, bringing the AVTS sponsorship to 36 and the grand total to 52 practical nursing programs in the state in 1976.

Unfortunately, this two-year period can provide only limited data from which to make judgments about trends. Information concerning practical nursing programs is somewhat fragmentary, perhaps due to the withdrawal of hospitals from sponsoring these programs as well as a greater involvement in recent years by community colleges. For example, in 1971 there were only two community colleges offering such programs. In 1975 there were eight, with the potential of all 14 institutions becoming involved. Also, since 1970 eight hospitals have closed out their practical nursing programs.

The data below are indicative of trends in the number of graduates from community colleges and vocational/technical schools over a five-year period. Comparable data for hospital-based practical nursing graduates were not readily available.

Practical Nursing Program Graduates, 1971-1975

Type Institution	1971	1972	1973	1974	1975
Community Colleges	119	126	320	517	469
Vocational/Technical Schools	1,624	1,793	1,776	1,836	1,810
TOTAL	1,743	1,919	2,096	2,353	2,279

It can be seen from the above that there was a slight decrease in the number of graduates from 1974 to 1975. The decline may be due to change; over the five-year period there has been a positive trend in the number of practical nurses graduating from these institutions.

Practical nursing does not have the status of professional nursing, yet this occupation can be considered as being on a higher level than nurses' aides, orderlies and attendants who are also charged with some degree of patient contact. For this reason, practical nursing is seen as a viable occupation whose potential contribution to the health field has not yet been fully explored or realized. Perhaps more through chance events than design, practical nurses became the principal beneficiaries when professional nurses sought to diversify and upgrade their occupational role, especially through specialization. This trend has widened considerably the possibilities for practical nurses.

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[27] Pennsylvania State Board of Nurse Examiners, Unpublished data, Harrisburg, Pa., 1975.

Table 23

Practical Nursing Programs Offered in Pennsylvania Hospital Schools of Nursing, 1974-1975[a]

Practical Nursing Programs	Admission to Class in 1975	Current Enrollment	Graduates 9/1/74	Graduates 8/31/75
Alvernia-St. Francis General	-	24	45	46
Camillus Mercy Hospital	42	-	34	32
Lankenau Hospital	19	15	16	12
Mercedian Hospital	32	27	32	27
Presbyterian University of Pennsylvania Medical College	30	-	14	13
Sacred Heart Hospital	54	54	41	44
St. Mary Hospital	46	44	36	35
Thomas Jefferson University	66	48	37	57
TOTAL	289	212	255*	266

[a] Pennsylvania State Board of Nurse Examiners, Unpublished data, Harrisburg, Pa., October 1975.

*Does not include 13 graduates from Carlisle Hospital. This hospital dropped its PN program in 1974.

Table 24

Practical Nursing Programs Offered in Pennsylvania Higher Education Institutions, 1974-1975[a]

Practical Nursing Programs	Admission to Class in 1975	1975-76 Enrollment	Graduates 9/1/74	Graduates 8/31/75
Butler County Community College	68	N/R	74	77
Community College of Allegheny County--North Campus	70	N/R	66	56
Community College of Beaver County	183	N/R	75	76
Lehigh County Community College	50	N/R	38	36
Montgomery County Community College	24	N/R	18	30
Northampton County Area Community College	104	N/R	99	72
Westmoreland County Community College	34	N/R	87	70
Williamsport Area Community College	49	N/R	60	52
TOTAL	582		517	469

[a] Pennsylvania State Board of Nurse Examiners, Unpublished data, Harrisburg, Pa., October 1975.

Abbreviation N/R means not reported or incomplete data furnished.

Table 25

Practical Nursing Programs Offered in Pennsylvania Public Vocational Schools, 1974-1975[a]

Practical Nursing Programs (Comprehensive and Vocational/Technical)	Admissions to Class in 1975	Current Enrollment	Graduates 8/31/74	Graduates 8/31/75
Altoona Area V-T	34	24	58	58
Bucks County Technical	25	46	43	44
Carbon County Area V-T	16	37	29	30
Central Chester Area V-T	18	32	31	28
Centre County V-T	28	11	50	39
Chester-Upland School District	43	31	45	46
Clearfield County V-T	38	37	27	33
Crawford County Area V-T	15	27	24	24
Danville Area School District	66	63	67	66
Eastern Montgomery County Area V-T	54	48	29	45
Erie School District	50	41	29	29
Fayette County Area V-T	20	36	30	31
Franklin County Area V-T	38	56	55	50
Greater Johnstown Area V-T	45	81	93	84
Greene County V-T	18	17	34	35
Hanover Public School District	21	17	29	30
Harrisburg-Steelton-Highspire	38	25	62	42
Hazleton Area V-T	20	14	28	27
Indiana Area School District	19	17	39	33
Jefferson County-DuBois Area V-T	18	15	31	34
Juniata-Mifflin Counties	17	31	39	31
Lackawanna County Area V-T	36	27	46	47
Lancaster County Area V-T	49	89	121	139
Lawrence County Area V-T	15	12	26	26
Lebanon County V-T	22	41	39	33
Mercer County Area V-T	18	32	32	27
Philadelphia School District	83	65	118	138
Pittsburgh Public Schools	136	93	192	180
Reading-Muhlenberg Area V-T	85	37	104	104
Schuylkill County Area V-T	18	33	32	28
Somerset Area School District	29	58	65	68
Upper Bucks County Area V-T	27	15	41	18
Venango County Area V-T	17	30	32	31
Wilkes-Barre Area V-T	52	39	70	66
York County Area V-T	33	54	46	66
TOTAL	1,261	1,331	1,836	1,810

[a]Pennsylvania State Board of Nurse Examiners, Unpublished data, Harrisburg, Pa., October, 1975.

It has already been observed that Pennsylvania's community colleges have become increasingly involved in practical nursing programs. There is a noticeable absence of other types of two-year college participation in this field in spite of the fact that collegiate-level programs in practical nursing can provide increased options for their students. Community college associate degree and practical nursing programs offered in 1975 are shown below:

Community Colleges Having Nursing Service Programs, 1975

Community College	Level of Program	
	Associate Degree	Practical Nurse
Bucks County	X	
Butler County	X	X
CC of Allegheny County	X	X
CC of Beaver County	X	X
CC of Philadelphia	X	
Delaware County	X	
Harrisburg Area	X	
Lehigh County		X
Luzerne County	X	
Montgomery County	X	X
Northampton County Area	X	X
Reading Area	X	
Westmoreland County	X	X
Williamsport Area	—	X
Number	12	8

Associate degree graduates who aspire to higher degrees can transfer to four-year colleges or universities. Depending on students' abilities and scholastic performance, six of the 14 community colleges also offer both levels of programs, thereby giving students internal program selection choices as well as institutional transfer possibilities.

CHAPTER X

PROFESSIONAL LICENSURE

A. A Comparison of Professional Nursing Program Sectors with Regard to Licensing Examination Findings[28]

The proportion of new nurses trained in the hospital-based diploma programs (the traditional form of nursing education) is declining in Pennsylvania. Because of this decline, fewer diploma graduates can be expected to participate in the professional nurse licensure examination. Evidence for this trend appears in Table 26. The years 1974 through 1976 might well be considered representative of this tendency because of the sharp drop in numbers of diploma examinees over a short-time period:

Year	Diploma Examinees	Difference	Per Cent Change
1974	3,713		
1975	3,008	- 705	- 19
1976	2,171	- 837	- 28

Predictably, there has also been a significant increase in the number of associate degree and baccalaureate program examinees during the 10-year period 1967-1976:

Program	Number of Examinees 1967	1976	Difference	Per Cent Change
Associate Degree	68	831	763	1,122
Baccalaureate	127	963	836	658

The comparison between diploma examinee decline and associate degree/ baccalaureate degree growth is strikingly depicted in Figure 9, which uses selected years to further emphasize the aforementioned decline and growth relative to the three major sources of professional nurse supply. These trends will, of course, persist if degree granting institutions continue to (1) expand professional nurse enrollments or (2) implement new nursing programs as in the past.

The number of program offerings (in terms of professional nurse examinee output) are shown below for select years:

Year	Programs Diploma	Associate Degree	Baccalaureate Degree
1967	93	3	7
1971	91	8	15
1975	74	15	16
1976	62	16	18

[28]Commission of Professional and Occupational Affairs, State Board of Nurse Examiners, Harrisburg, Pa., December 1, 1976.

Table 26

Comparison of Professional Nursing Schools in the Registered Nurse Licensing Examination[a]

Year	Type of Program	Number of Programs	Number of Examinees	Number of Failures	Per Cent Failing	Average Standard Median Score[b]
1967*	Diploma	93	3,221	424	13.1	509.0
	Associate Degree	3	68	34	50.0	464.3
	Baccalaureate	7	127	11	8.6	531.9
1968*	Diploma	93	3,829	459	11.9	515.8
	Associate Degree	4	103	50	48.5	440.3
	Baccalaureate	8	159	9	5.7	550.4
1969*	Diploma	95	4,245	421	9.9	519.5
	Associate Degree	5	110	22	20.0	465.9
	Baccalaureate	9	183	12	6.5	539.8
1970	Diploma	93	3,206	307	9.5	524.3
	Associate Degree	6	168	46	27.3	499.1
	Baccalaureate	14	232	14	6.0	563.5
1971	Diploma	91	3,059	246	8.0	523.3
	Associate Degree	8	258	77	29.8	454.7
	Baccalaureate	15	199	10	5.0	525.2
1972	Diploma	90	3,062	228	7.4	528.0
	Associate Degree	10	350	69	19.7	469.7
	Baccalaureate	12	366	17	4.6	539.0
1973	Diploma	85	2,953	200	6.7	526.7
	Associate Degree	12	629	144	22.8	477.3
	Baccalaureate	14	481	24	4.9	517.9
1974	Diploma	79	3,713	218	5.8	526.6
	Associate Degree	13	733	207	28.2	464.2
	Baccalaureate	16	658	61	9.2	517.9
1975	Diploma	74	3,008	196	6.5	513.4
	Associate Degree	15	856	188	21.9	471.8
	Baccalaureate	16	834	107	12.8	521.9
1976	Diploma	62	2,171	182	8.4	531.0
	Associate Degree	16	831	139	16.7	510.2
	Baccalaureate	18	963	154	16.0	517.3

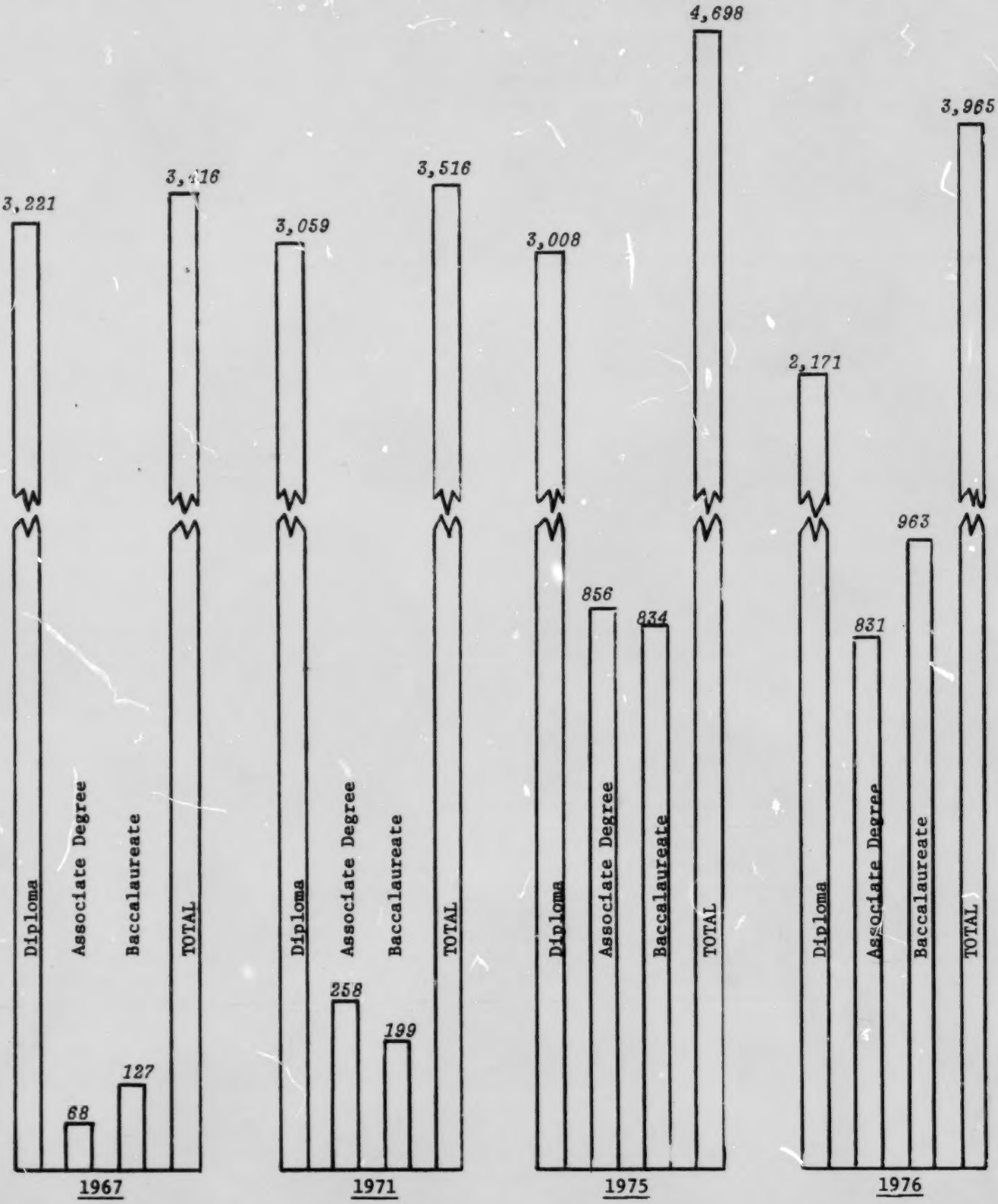
[a] Commission of Professional and Occupational Affairs, State Board of Nurse Examiners, Harrisburg, Pa., December 1, 1976.

[b] Scores for five examinations are represented in this column. They include examinations for Medical Nursing, Surgical Nursing, Obstetrical Nursing, Nursing of Children and Psychiatric Nursing.

*Report for years 1967, 1968 and 1969 includes grades examined from November 1 of the previous year to October 31 of the indicated year. Reporting was changed in 1971, and thereafter, to include graduates examined during the calendar year.

Figure 9

Growth in the Number of Applicants Examined for Professional Nurse Licensure in Pennsylvania, by Program, 1967, 1971, 1975 and 1976[a]



[a] State Board of Nurse Examiners, Harrisburg, Pa., 1976.

In essence, it can be seen that over a ten-year period 31 fewer diploma programs were represented in the professional nurse examinations. During the same period there was an increase of 13 associate degree and 11 baccalaureate awarding institutions furnishing nurse graduates for the licensure examination.

Referring again to Table 26, it may be noted that not all graduated nurses are able to pass the state licensing examination. Furthermore, there are marked differences between the three sectors in terms of the rate of failure. Figure 10 shows the failure rate, by program, of those seeking licensure as a registered nurse.[29] Again, selected years are shown to highlight the failure trend patterns. The most significant finding in Figure 10 is the decline in the proportion of associate degree examinees failures from 1967 to 1976 (50 per cent of 68 examinees in 1967 compared to 16.7 per cent of 831 examinees in 1976). By comparison, the percentage of failures from diploma and baccalaureate programs has been fairly consistent.

In Figure 11, it is interesting to note that in 1967 the average standard median scores for diploma, associate degree and baccalaureate nurse examinees was 509.0, 464.3 and 531.9, respectively.[30] According to current 1976 data, the examination scores have since been converging toward a common level; i.e., there is less spread between examinees. The median scores in 1967 compared to 1976 are summarized below:

	Scores			Diploma/Assoc. Degree
Year	Diploma	Associate Degree	Baccalaureate	Score Difference
1967	509.0	464.3	531.9	44.7
1976	531.0	510.2	517.3	20.8

These data from Figure 11 suggest that the quality diploma nursing programs have survived longer, while the marginal programs were phased out earlier. This is suggested by the rise, over time, in the average score obtained by diploma nursing graduates.

It is also interesting to note that in 1976 the diploma nursing school graduates still scored substantially higher (531.0) than the associate degree (510.2) and baccalaureate degree (517.3) graduates. This raises a question as to whether the licensing examination reflects clinical or practical nursing skills that are not emphasized as much in baccalaureate or associate degree programs.

Equally striking is the fact that the average scores of baccalaureate graduates have declined from 531.9 to 517.3 as the number of baccalaureate programs increased. Apparently the quality of some of the new programs is not as high as was typical when the baccalaureate nursing program was comparatively rare. This may be due to the problem of obtaining qualified nursing education faculty and, possibly, difficulty in developing adequate clinical practicum facilities and programs as well as the greater emphasis on preparation for the newer roles for professional nurses.

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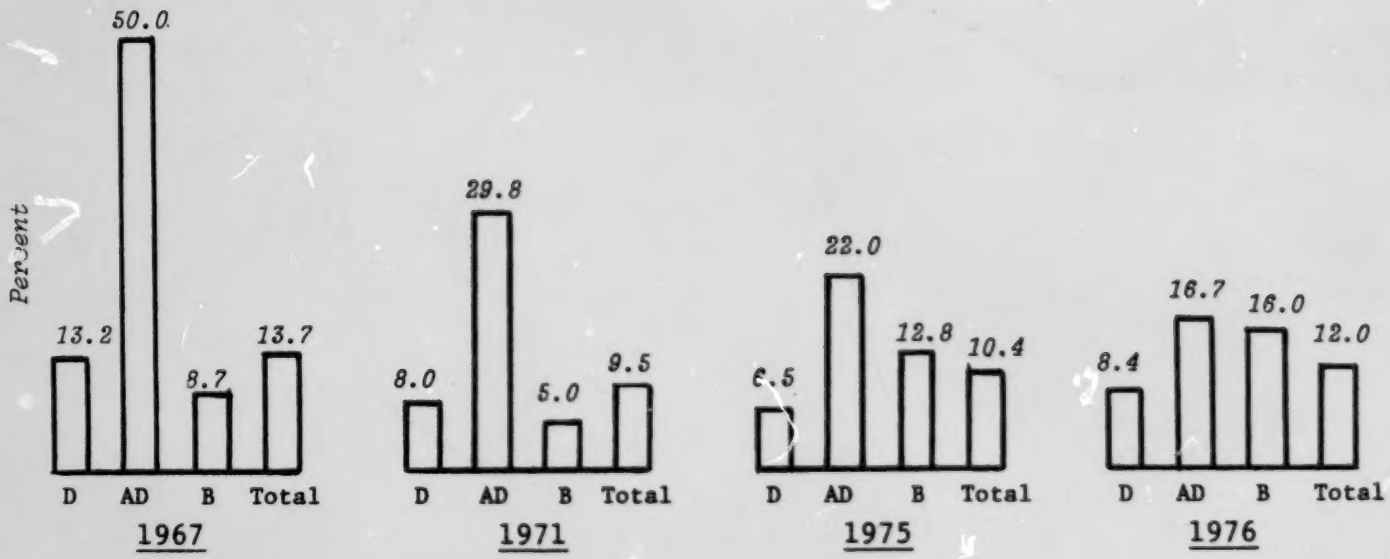
29 Ibid.

30 Ibid.

Figure 10

Failure Rate by Program of Those Seeking Licensure as a Registered Nurse, 1967, 1971, 1975 and 1976[a]



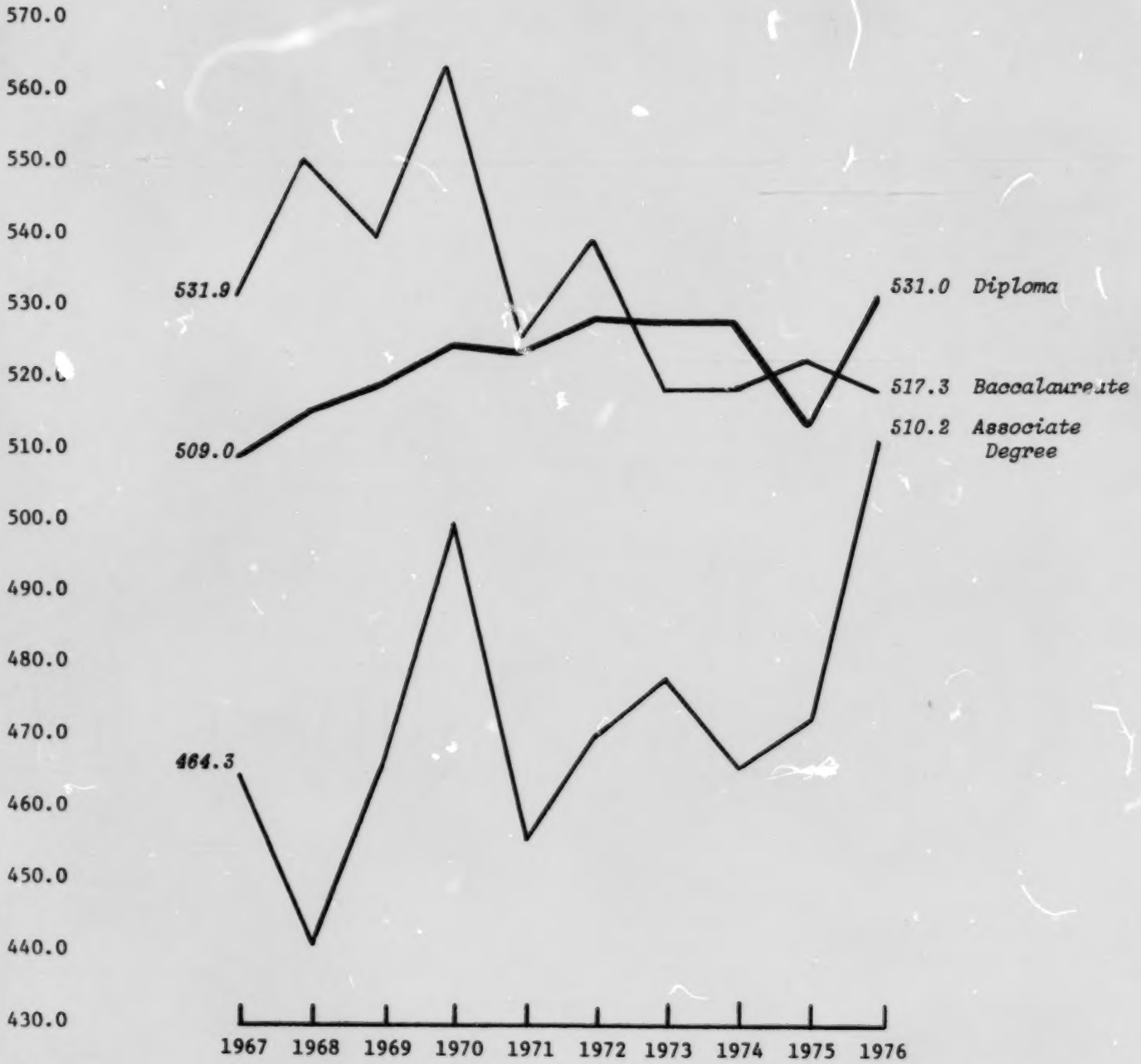
Type of Program

D - Diploma
AD - Associate Degree
B - Baccalaureate

[a]State Board of Nurse Examiners, Harrisburg, Pa., 1976.

Figure 11

Professional Licensing Average Standard Median Scores, by Program Sector, 1967-1976[a]



[a]State Board of Nurse Examiners, Harrisburg, Pa., 1976.

CHAPTER XI

A. Selected Health Occupations and Professions in Pennsylvania, 1970 and 1980

This portion of the report presents some estimates of the number of occupational and professional personnel employed in 1970 and projected employment in 1980 in the Commonwealth. The data are derived from a U.S. Department of Labor Iterated Matrix for Pennsylvania.[31]

Despite the limited number of health-related occupations listed in Table 27, there is evidence of a growing need for workers in both the broadly defined fields, such as laboratory technologists and technicians, and in the specific occupations, such as dental assistant.

The projected growth of specific occupations is indicated below, based on Table 27.

Occupation	1970 Employment	Projected 1980 Employment	Per Cent Increase
Laboratory Technologists/Technicians	7,535	12,211	62
Child Care Workers	9,578	12,788	34
Dental Assistants	4,468	6,056	36
Dental Hygientists	895	1,879	109
Dental Laboratory Technicians	1,575	1,706	8
Health Aides (Except Nurses)	6,287	10,042	61
Health Records Technologists/Technicians	603	1,344	123
Nurses Aides/Orderlies	35,700	43,602	22
Nurses, Practical	18,503	27,580	49
Radiologic Technologists/Technicians	3,484	4,846	39
Recreation Workers	2,993	4,104	37
Secretaries, Medical	6,608	9,789	48
Social Workers	15,918	20,354	28
Therapists	4,686	7,344	57
Therapy Assistants	112	201	79
Other Health Technologists/Technicians	3,701	5,738	55

Closer examination of Table 27 reveals that the majority of health occupation personnel were employed in hospitals or nursing homes in 1970. It is expected that hospitals and nursing homes will continue to be the principal employers through 1980 and beyond. A slight increase in employment in the medical/health services (office-based, hospital and the like) is expected during the decade ending in 1980. Conversely, a decrease in business and industry employment of health-related occupation personnel will probably occur during the same period. These expected trends are indicated below:

Year	Employed	Per Cent in Medical/Health Services			Per Cent in Business Industry
		Office-Based	Hospital Nursing Home	Other	
1970	81,249	6.6	67.2	6.5	19.7
1980	105,403	5.6	69.1	8.2	17.1

[31] Iterated Pennsylvania Matrix (Unpublished), U.S. Department of Labor, Bureau of Labor Statistics, Mideast Regional Office, Philadelphia, Pa., 1974.

Table 27

Employment in 1970 and Projected 1980 Employment in Selected Health Occupations in Pennsylvania[a]

Occupation	Total Employed 1970	Per Cent in Medical/Health Services: Office-Based	Hospital/Nursing Home-Based	Other	Per Cent in Business/ Industry*	Projected Employment 1980	Per Cent in Medical/Health Services: Office-Based	Hospital/Nursing Home-Based	Other	Per Cent in Business/ Industry*
Clinical Laboratory Technologists/ Technicians	7,535	6.1	82.4	6.8	4.7	12,211	5.3	83.2	7.7	3.8
Child Care Workers	9,578	0.2	18.5	0.6	80.7	12,788	0.1	18.4	0.2	81.3
Dental Assistants	4,468	92.3	2.5	1.7	3.5	6,036	94.2	2.6	1.7	1.5
Dental Hygienists	895	70.5	1.7	4.5	23.3	1,879	65.3	1.3	5.9	27.5
Dental Laboratory Technicians	1,575	21.9	3.8	55.0	19.3	2,706	14.7	4.6	63.1	17.6
Health Aides (Except nurses)	6,287	24.7	65.6	3.9	5.8	10,042	26.9	65.4	3.9	3.8
Health Records Technologists/Technicians	603	2.7	91.7	0.8	4.8	1,344	1.0	97.0	1.0	1.0
Nurses Aides/Orderlies	35,700	0.4	94.5	0.9	4.2	43,602	0.3	95.2	0.8	3.7
Nurses, Practical	18,503	3.1	87.1	4.8	5.0	27,580	2.9	89.9	4.0	3.2
Radiologic Technologists/Technicians	3,484	12.4	81.2	4.9	1.5	4,846	11.4	82.3	5.5	0.8
Recreation Workers	2,593	0.0	8.2	0.2	91.6	4,104	0.0	9.0	0.1	90.9
Secretaries, Medical	6,608	48.3	41.7	1.5	8.5	9,789	54.6	39.1	1.5	4.8
Social Workers	15,918	0.2	8.9	2.0	88.9	20,354	0.1	9.7	2.0	88.2
Therapists	4,686	0.9	58.2	10.7	30.2	7,344	0.9	60.6	9.1	29.4
Therapy Assistants	112	0.0	74.7	8.0	17.9	201	0.0	74.1	9.5	16.4
Other Health Technologists/ Technicians	3,701	2.5	58.8	8.6	30.1	5,738	3.6	59.9	9.8	26.7

[a]Iterated Pennsylvania Matrix, (unpublished), U.S. Department of Labor, Bureau of Labor Statistics, Mideast Regional Office, Philadelphia, Pa., 1974.
*Examples include employment in agriculture, manufacturing, wholesale-retail, government service and educational service.

Table 28

Employment in 1970 and Projected 1980 Employment in Selected Health Professions in Pennsylvania[a]

Profession	Total Employed 1970	Office-Based	Hospital/Nursing Home-Based	Other	Per Cent in Business/ Industry*	Projected Employment 1980	Office-Based	Hospital/Nursing Home-Based	Other	Per Cent in Business/ Industry*
Chiropractors	1,016	98.0	0.0	0.0	2.0	1,512	100.0	0.0	0.0	0.0
Dietitians	2,234	0.2	74.9	1.1	23.8	2,870	0.9	74.8	1.1	24.0
Health Administrators	3,959	0.0	89.4	10.6	0.0	5,748	0.0	91.3	8.7	0.0
Nurses, Registered	62,531	6.7	77.0	4.8	11.5	80,550	5.5	78.6	6.9	9.0
Optometrists	1,273	1.6	0.0	86.9	11.5	1,735	1.2	0.0	89.2	9.6
Pharmacists	7,161	1.1	10.6	0.2	88.1	8,237	0.2	9.9	0.2	89.7
Podiatrist	637	3.1	1.0	94.3	1.6	845	2.1	1.1	96.8	0.0
Psychologists	1,620	0.3	33.3	3.2	63.2	2,861	0.2	44.6	4.1	51.1
Veterinarians	818	0.5	0.0	0.9	98.6	1,225	0.5	0.0	0.0	99.5

[a]Iterated Pennsylvania Matrix, U.S. Department of Labor, Bureau of Labor Statistics, Mideast Regional Office, Philadelphia, Pa., 1974 (not published).
*Examples include employment in agriculture, manufacturing, wholesale-retail, government service and educational services.

In summary, it is anticipated that the major growth in the occupations (allied health) will occur for the health records technologists and technicians (123 per cent), dental hygienists (109 per cent), therapists (57 per cent) and therapy assistants (79 per cent), health aides other than nurses (61 per cent) and laboratory technologists and technicians (62 per cent). Obviously, there are many new allied health occupations that are not listed, since it takes a period of time for trends to develop that will permit extrapolation into the future, e.g., physician assistants.

In the professions (Table 28) the chiropractors, health administrators, clinical psychologists and veterinarians are seen as growing the most on a percentage basis. Projected Pennsylvania employment estimates for nine selected health professions, as derived from the U.S. Department of Labor's Iterated Matrix, appear below:

Profession	1970 Employment	Projected 1980 Employment	Per Cent Increase
Chiropractors	1,016	1,512	49
Dietitians	2,234	2,870	28
Health Administrators	3,959	5,748	45
Nurses, Registered	62,531	80,550	29
Optometrists	1,273	1,735	36
Pharmacists	7,161	8,057	13
Podiatrists	637	845	33
Psychologists	1,620	2,861	77
Veterinarians	818	1,225	50

Compared to the occupational categories (allied health) appearing in Table 27, a smaller percentage of professional personnel (Table 28) are engaged in medical/health services. However, nearly 90 per cent of the registered nurses are involved in the medical/health services (mostly in hospitals, physician's offices and nursing homes). On the other hand, about 99 per cent of the veterinarians are employed in business and industry (business, industry and other services includes areas such as agriculture manufacturing, wholesale-retailing, government service and education).

In the summary data appearing below, it is observed that the percentage of professional employes involved in medical/health services will increase slightly while those engaged in business/industry will decline (about two per cent).

		Per Cent in Medical/Health Services			Per Cent in
Year	Employed	Office-Based	Hospital Nursing Home	Other	Business Industry
1970	122,646	9.5	61.1	3.6	25.8
1980	169,584	10.4	62.0	3.7	23.9

Appendices N and O contain more details concerning 1970 and projected 1980 employment in the health occupations and professions.

These findings indicate that, for the most part, the health occupations and professions are going to increase in numbers and in percentage growth, with relatively few growing by less than a third between 1970 and 1980. Indeed, these professions have been experiencing growth in recent years.

The estimates do not constitute, however, a basis for unlimited expansion of the numbers trained for entry into these occupations, since few have a truly large growth projection and there is no way of determining whether the projected growth patterns will persist beyond 1980. Certainly, the previously cited demographic changes concerning the increase in the older age group and the highly probable development of national health insurance, as well as new approaches to primary care delivery, will promote further growth, but to what degree it is not possible to determine.

BIBLIOGRAPHY

A Design for Regionalization in Higher Education. Office of Higher Education, Bureau of Planning, Pennsylvania Department of Education. Harrisburg, Pa. 1973.

Allied Medical Education Directory. The Council on Medical Education of the American Medical Association. Chicago, Ill. 1974.

American Hospital Association Guide to the Health Care Field, 1975 ed. Chicago, Illinois.

"Annual Survey of Professional Nursing Programs." Commission of Professional and Occupational Affairs, State Board of Nurse Examiners. Harrisburg, Pa. 1976.

College Bound Seniors, 1974-76, National Report. College Entrance Examination Board. Princeton, N.J. 1975 and 1976.

College Bound Seniors, 1975-76, Pennsylvania Report. College Entrance Examination Board. Princeton, N.J. 1975 and 1976.

Current Population Reports: Federal-State Cooperative Programs for Population Estimates, Series P-26, No. 93 (Pennsylvania). U.S. Department of Commerce. Washington, D.C. 1974.

"Directories of Long-Term Care Facilities (Nursing Homes)." Office of the Executive Secretary for Operations, Pennsylvania Department of Public Welfare. Harrisburg, Pa. February 1975.

Employes in Nursing Homes: United States, April-September 1968. U.S. Department of Health, Education and Welfare, National Center for Health Statistics. Rockville, Md. October 1972.

General Hospital Directory. The Division of Licensure, Bureau of Comprehensive Services, Pennsylvania Department of Health. Harrisburg, Pa. January 1975.

Health Manpower Issues: A Presentation at the White House, November 13, 1975. Department of Health, Education and Welfare, Public Health Service, Bureau of Health Manpower, Washington, D.C. 1975.

Health Occupations Training Programs Administered by Hospitals. U.S. Department of Health, Education and Welfare, Bureau of Health Resources Development. Washington, D.C. December 1974.

Health Resources Statistics. U.S. Department of Health, Education and Welfare, Public Health Services, Health Resources Administration, National Center for Health Statistics. Rockville, Md. 1974.

"Iterated Pennsylvania Matrix, 1970" (Unpublished). U.S. Department of Labor, Bureau of Labor Statistics, Mideast Regional Office. Philadelphia, Pa. 1974.

"Iterated Pennsylvania Matrix, 1980" (Unpublished). U.S. Department of Labor, Bureau of Labor Statistics, Mideast Regional Office. Philadelphia, Pa. June 4, 1974.

Long-Term Care Facility Standards and Regulations for Skilled Nursing Facilities and Intermediate Care Facilities. Pennsylvania Department of Public Welfare, Office of Medical Programs. Harrisburg, Pa. 1975

Morgan, Ruth and Balog, Margaret M. Pennsylvania's Nurses: 1972 Inventory of Registered Nurses. Division of Public Health Nursing, Pennsylvania Department of Health. Harrisburg, Pa. 1975.

Nursing Homes: A County and Metropolitan Area Data Book. U.S. Department of Health, Education and Welfare, Public Health Services and Mental Health Administration. Rockville, Md. 1973.

Pennsylvania Hospital Manpower Demand, Individual County Data. Hospital Educational and Research Foundation of Pennsylvania. Camp Hill, Pa. 1968.

Pennsylvania State Board of Nurse Examiners. Information relating to associate degree programs. Unpublished data. October 1975.

Pennsylvania State Board of Nurse Examiners. Information relating to general baccalaureate programs. Unpublished data. October 1975.

Pennsylvania State Board of Nurse Examiners. Information relating to practical nursing programs. Unpublished data. October 1975.

Pennsylvania State Board of Nurse Examiners. Information relating to registered nurse programs. Unpublished data. October 1975.

Pennsylvania State Board of Nurse Examiners. "Type of Advance Nursing Programs." Harrisburg, Pa. 1977.

"Program Offerings in Pennsylvania Colleges and Universities, 1976." Unpublished data. Pennsylvania Department of Education, Harrisburg, Pa.

Senier, John. Population Projections for Pennsylvania and Counties, 1970-2000. Bureau of Information Systems, Pennsylvania Department of Education, Harrisburg, Pa. 1975.

"Survey of Allied Health and Health-Related Programs Offered at Institutions of Higher Education in Pennsylvania." Pennsylvania Department of Education, Bureau of Information Systems. Harrisburg, Pa. 1974.

"Survey of Hospital Employes in Health-Related Occupations in Pennsylvania." Pennsylvania Department of Education, Bureau of Information Systems. Harrisburg, Pa. 1974.

"Survey of Nursing Home Employes by Select Health and Health-Related Categories in Pennsylvania." Pennsylvania Department of Education, Bureau of Information Systems, Harrisburg, Pa. 1974.

Unpublished data. 1974 Annual Survey for Pennsylvania. American Hospital Association. Chicago, Ill. July 1975.

Appendix A

Occupation Titles in the Health Fields

Primary Title	Alternate Title
1. ADMINISTRATION OF HEALTH SERVICES:	
Assistant hospital administrator)	Assistant administrator
Assistant nursing home administrator)	
Clinic manager	
Health administrative assistant	
(Health agency) administrator	Executive director (of health agency)
	Public health administrator
(Health agency) program representative	Field representative
Health care facility surveyor	
Health officer	Environmental control administrator
	(Health care) administrator
	Health commissioner
	Health department administrator
	Medical care administrator
	Public health administrator
Health planner	Comprehensive health planner
Health program analyst	Program specialist
	Program health analyst
	Public health specialist
Health program representative	Public health advisor
	Public health representative
Health systems analyst	
Hospital administrator	Executive director (of hospital)
	Executive vice-president (of hospital)
	President (of hospital)
Nursing home administrator	
2. ANTHROPOLOGY AND SOCIOLOGY:	
Anthropologist	Cultural anthropologist
	Physical anthropologist
	Social anthropologist
Sociologist	Medical sociologist
	Sociometrist
3. AUTOMATIC DATA PROCESSING:	
Computer operator	
Computer programmer	
Systems analyst	
4. BASIC SCIENCES IN THE HEALTH FIELD:	
Scientist	Bio(logical) scientist
	Bio(medical) scientist
	Laboratory scientist
	Life scientist
	(Medical) research scientist
	Natural scientist
	Physical scientist
	Research scientist
Anatomist	Cytologist
	Embryologist
	Histologist
Biologist	
Botanist	
Chemist	
Ecologist	
Entomologist	
Epidemiologist	
Geneticist	
Hydrologist	Ground water hydrologist
Immunologist	
Meteorologist	Air pollution meteorologist
Microbiologist	Bacteriologist
	Mycologist
	Parasitologist
	Virologist
Oceanographer	Estuarine oceanographer
Pharmacologist	Toxicologist
Physicist	Biophysicist
	Health physicist
Physiologist	Plant physiologist
Plant pathologist	
Zoologist	Limnologist
5. BIOMEDICAL ENGINEERING:	
Biomedical engineer	Bioengineer
	Clinical engineer
	Electronic(s) engineer
	(Medical) engineer
Biomedical engineering aide	
Biomedical equipment technician	Biomedical engineering technic
	Biomedical instrument techn. ci
	Medical engineering technicia
6. CHIROPRACTIC:	
Chiropractor	Doctor of chiropractic--D.C.
7. CLINICAL LABORATORY SERVICES:	
Clinical laboratory assistant	(Certified) laboratory assistan
	Clinical laboratory aide
	Histologic aide
	(Pathology) laboratory aide
Clinical laboratory director	(Bioanalyst) laboratory directo
	(Bioanalyst) laboratory supervi
Clinical laboratory scientist	Bioanalyst
	Bio(logical) chemist
	Clinical chemist
	Clinical pathologist
	Medical microbiologist
	Registered microbiologist
	Specialist chemist
	Specialist hematologist
	Specialist microbiologist
	Toxicological chemist
Clinical laboratory technician	Certified technician
	Cytotechnologist
	Histologic technician
	Medical (laboratory) technician
Clinical laboratory technologist	(Registered) laboratory technic
	Chemistry technologist
	Hematology technologist
	(Medical) laboratory technologi
	Microbiology technologist
	Nuclear medical technologist
	(Registered) medical technologi

(Cont'd)

[a] Health Resources Statistics, U.S. Department of Health, Education and Welfare, Public Health Services, Health Resources Administration, National Center for Health Statistics, Rockville, Md., 1974.

Primary Title	Alternate Title
Specialist in blood bank technology	Blood bank(ing) technologist
8. DENTISTRY AND ALLIED SERVICES:	
Dental assistant	Chairside (dental) assistant
Dentist	Doctor of dental medicine-D.M.D.
	Doctor of dental surgery-D.D.S.
	Dental (general) practitioner
	Dental intern
	Dental officer
	Dental specialist
	Dental surgeon
	Endodontist
	Oral pathologist
	Oral surgeon
	Orthodontist
	Pedodontist
	Periodontist
	Prosthodontist
	Public health dentist
Dental hygienist	(Oral) hygienist
Dental laboratory technician	Dental laboratory assistant
9. DIETETIC AND NUTRITIONAL SERVICES:	
Dietetic assistant	Dietary assistant
	Food service assistant
	Food service supervisor
Dietetic clerical worker	Food service clerical worker
Dietetic technician	Dietary technician
	Food service manager
	Food service supervisor
	Food service technician
Dietitian	Administrative dietitian
	Clinical dietitian
	Consultant dietitian
	Dietetic educator
	Dietetic intern
	Public health dietitian
	Registered dietitian
	Research dietitian
	Teaching dietitian
	Therapeutic dietitian
Food service worker	Dietary aide
	Dietary worker
Nutritionist	Nutrition educator
	Public health nutritionist
	Research nutritionist
	Teaching nutritionist
10. ECONOMIC RESEARCH IN THE HEALTH FIELD:	
Health economist	Economist
	Medical economist
11. ENVIRONMENTAL SANITATION:	
Environmental health aide	(Environmental) engineering aide
	Environmental (science) aide
	Sanitarian aide
Environmental health technician	Environmental (engineering) technician
	Environmental (science) technician
	Sanitarian technician
Sanitarian	Environmental sanitarian
	Environmental technologist
	Environmentalist
	Food sanitarian
	Milk sanitarian
	Sanitary inspector

Primary Title	Alternate Title
12. FOOD AND DRUG PROTECTIVE SERVICES:	
Food and drug chemist	Food and drug analyst
	Laboratory analyst
Food and drug microbiologist	
Food technician	Food and drug technician
	Food processing technician
Food technologist	Food scientist
Health inspector	Consumer safety officer
	Egg products inspector
	Food inspector
	Food and drug inspector
	Foreign quarantine inspector
	Meat and poultry inspector
13. FUNERAL DIRECTORS AND EMBALMERS:	
Embalmer	
Funeral director	Mortician
	Undertaker
14. HEALTH AND VITAL STATISTICS:	
Health demographer	Demographer
Health statistician	Bio(logical) statistician
	Biomathematician
	Biometrician
	Medical statistician
	Public health statistician
Statistical assistant	Statistical clerk
Vital record registrar	State registrar
15. HEALTH EDUCATION:	
Health educator	College health educator
	Community health educator
	Public health educator
	School health coordinator
	School health educator
16. HEALTH INFORMATION AND COMMUNICATION:	
Biomedical photographer	Medical photographer
	(Registered) biological photographer
Draftsman	
Health information specialist	Biomedical communication specialist
	Health communication specialist
	Public information specialist
	Visual communication specialist
	Visual information specialist
Illustrator	Visual presentation technician
Medical illustrator	Biomedical illustrator
	Medical artist
Medical writer	Medical writer-editor
Poster and display artist	Exhibits specialist
	Graphic arts specialist
Science writer	Health science writer
Technical writer	Health technical writer
	Technical communication specialist
	Technical journalist
17. LIBRARY SERVICES IN THE HEALTH FIELD:	
Medical librarian	Health science(s) librarian
Medical library assistant	
Patients' librarian	(Hospital) librarian

(Cont'd)

Primary Titles	Alternate Titles
18. MEDICAL RECORDS:	
Medical record administrator	Health record technologist
	Medical record librarian
	Medical record specialist
	Medical record technologist
	(Registered) record administrator
	(Registered) record librarian
Medical record clerk	Medical record aide
Medical record technician	Accredited record technician
	Health record technician
	Medical record assistant
19. MEDICINE AND OSTEOPATHY:	
Physician	Doctor of medicine-M.D.
	Doctor of osteopathy-D.O.
	Aerospace medicine specialist
	Anesthesiologist
	Aviation medicine specialist
	Cardiovascular disease specialist
	Chest physician
	(Child) psychiatrist
	Clinical investigator
	Colon and rectal surgeon
	Dermatologist
	(Diagnostic) radiologist
	Family practitioner
	Foreign medical graduate
	(Forensic) pathologist
	Gastroenterologist
Physician	General practitioner
	(General) surgeon
	Group physician
	Gynecologist
	Hematologist
	(Hospital) intern
	(Hospital) resident
	Immunologist
	Industrial (medicine) physician
	Internal medicine specialist
	Internist
	Manipulative therapist
	(Medical) clinician
	Medical officer (in charge)
	Medical physician (or specialist)
	Military surgeon
	Neuro(logical) psychiatrist
	Neuro(logical) surgeon
	Neurologist
	Nuclear medicine specialist
	Ob(stetrical)-gyn(ecological) surgeon
	Obstetrician
	Occupational medicine specialist
	Oculist
	Ophthalmologist
	Orthopedic surgeon
	Osteopathic physician (or specialist)
	(Oto)(rhino)laryngologist
	(Pediatric) allergist
	(Pediatric) cardiologist
	Pediatrician
	Physical medicine and rehabilitation specialist
	Plastic surgeon
	Preventive medicine specialist
	Proctologist
	Psychiatrist
	Psychoanalyst
	Public health physician
	Pulmonary disease specialist
	Rehabilitation medicine specialist
	Research fellow
	Solar therapist
	Therapeutic radiologist
	Thoracic surgeon
	Urological surgeon
	Urologist
20. MIDWIFERY:	
Lay-midwife	Midwife
Nurse-midwife	Certified nurse-midwife
21. NURSING AND RELATED SERVICES:	
Attendant)	Nurse('s) aide
Nursing aide)	Nurse technician
Orderly)	Nursing assistant
)	Psychiatric aide
Home health aide	Home aide
	Homemaker
	Visiting health aide
Licensed practical nurse-L.P.N.	Practical nurse
Licensed vocational nurse-L.V.N.	Vocational nurse
Registered nurse-R.N.	Clinic nurse
	Community health nurse
	(Employe) health nurse
	Geriatric nurse
	(Graduate) nurse
	Hospital nurse
	Industrial nurse
	Maternal and child health nurse
	Medical (-surgical) nurse
	Mental health nurse
	Nurse anesthetist
	Obstetric(al) nurse
	Occupational health nurse
	Office nurse
	Operating room nurse
	Pediatric nurse
	Private duty nurse
	Psychiatric nurse
	Public health nurse
	School health nurse
	Visiting nurse
22. OCCUPATIONAL THERAPY:	
Occupational therapist	Occupational therapist registered
Occupational therapy aide	
Occupational therapy assistant	Certified occupational therapy assistant
23. OPTICIANRY:	
Dispensing optician	Contact lens technicians
	Ophthalmic dispenser
	Optical fitter
	(Prescription) optician
Optical mechanic	Lens grinder-polisher
	Mechanical optician
	Ophthalmic (laboratory) technician
	Optical laboratory mechanic
	Optical (laboratory)technician

(Cont'd)

Primary Titles	Alternate Titles
24. OPTOMETRY:	
Optometric assistant	
Optometric technician	Ocular care technician
	Vision care technician
Optometrist	Doctor of optometry-O.D.
Vision care aide	Ocular care aide
	Ophthalmic aide
	Optometric aide
	Visual training aide
Vision care technologist	Ocular care technologist
	Ophthalmic technologist
	Optometric technologist
25. ORTHOTIC AND PROSTHETIC TECHNOLOGY:	
Orthotic-prosthetic assistant	
Orthotic-prosthetic technician	Orthotic aide
	Prosthetic aide
	Restoration technician
Orthotist	Orthopedic appliance maker
	Orthopedic brace maker
Prosthetist	Artificial limb maker
	Orthotist-prosthetist
	Prosthetic appliance maker
26. PHARMACY:	
Pharmacist	Doctor of pharmacy-Pharm.D.
	Apothecary
	Clinic(al) pharmacist
	Community pharmacist
	Consultant pharmacist
	Druggist
	Hospital pharmacist
	(Hospital) pharmacy resident
	Industrial pharmacist
	Pharmacy intern
	Prescription pharmacist
	Registered pharmacist
	Retail druggist
Pharmacy aide	Community pharmacy aide
	Hospital pharmacy aide
	Pharmacy helper
Pharmacy assistant	
Pharmacy technician	
27. PHYSICAL THERAPY:	
Physical therapist	Clinical physical therapist
	Physiotherapist
Physical therapist aide	Physical therapy aide
Physical therapist assistant	Physical therapy assistant
	Physical therapy technician
28. PODIATRIC MEDICINE:	
Podiatrist	Doctor of podiatric medicine-D.P.M.
	Doctor of podiatry-D.P. (or Pod.D.)
	Chiropodist
	Hospital podiatrist
	Foot orthopedist
	Foot roentgenologist
	Foot surgeon
	Podiatric dermatologist
	Podiatric physician
	Podiatric surgeon
	Podiatry intern
	Pododermatologist

Primary Titles	Alternate Titles
29. PSYCHOLOGY:	
Psychologist	Clinical psychologist
	Community psychologist
	Comparative psychologist
	Counseling psychologist
	Developmental psychologist
	Educational psychologist
	Experimental psychologist
	Guidance psychologist
	Industrial psychologist
	Measurement psychologist
	Personnel psychologist
	Physiological psychologist
	Psychometrist
	School psychologist
	Social psychologist
30. RADIOLOGIC TECHNOLOGY:	
Nuclear medicine technician	Nuclear medical technician
Nuclear medicine technologist	
Radiation therapy technician	
Radiation therapy technologist	
Radiologic technician	
Radiologic technologist	(Clinical) radiography technologist
	Registered (radiologic) technologist
	X-ray technician
	X-ray technologist
31. RESPIRATORY THERAPY:	
Respiratory therapist	Inhalation therapist
	Registered inhalation therapist
Respiratory therapy aide	Inhalation therapy aide
Respiratory therapy technician	Certified respiratory therapy technician
	Inhalation therapy technician
32. SECRETARIAL AND OFFICE SERVICES:	
Dentist's office assistant Dental receptionist Dental secretary Optometrist's office assistant Optometric receptionist Optometric secretary Physician's office assistant Medical receptionist Medical secretary	Office assistant Receptionist Secretary
33. SOCIAL WORK:	
Social work assistant	Clinical social work assistant
Social work technician	Clinical casework aide
	(Clinical) social work aide
Social worker	Caseworker
	Certified social worker
	Clinical social worker
	Medical social worker
	Psychiatric social worker
	Social welfare worker
34. SPECIALIZED REHABILITATION SERVICES:	
Corrective therapist	Adapted physical educator
	Certified corrective therapist
Corrective therapy aide	Corrective therapy assistant

(Cont'd)

Primary Titles	Alternate Titles
34. SPECIALIZED REHABILITATION SERVICES: (Cont'd)	
Educational therapist	Medical rehabilitation specialist
	Medical rehabilitation therapist
	(Registered) rehabilitation specialist
	(Registered) rehabilitation consultant
Home economist in rehabilitation	Homemaking rehabilitation consultant
Manual arts therapist	Industrial (arts) therapist
Manual arts therapist assistant	
Music therapist	Registered music therapist
Therapeutic recreation aide	Recreation therapy aide
Therapeutic recreation specialist	Adjunctive therapist
	Recreation(al) therapist
Therapeutic recreation technician	Therapeutic recreation assistant
35. SPEECH PATHOLOGY AND AUDIOLOGY:	
Audiologist	Audiometrist
	Hearing therapist
Speech pathologist	Speech therapist
36. VETERINARY MEDICINE:	
Veterinarian	Doctor of veterinary medicine-D.V.M. (or V.M.D.)
	Animal medicine veterinarian
	Laboratory veterinarian
	Military veterinarian
	Public health veterinarian
	Theriogenologist
	Veterinary intern
	Veterinary internist
	Veterinary laboratory diagnostician
	Veterinary microbiologist
	Veterinary ophthalmologist
	Veterinary pathologist
	Veterinary physician
	Veterinary preventive medicine specialist
	Veterinary radiologist
	Veterinary resident
	Veterinary surgeon
	Veterinary toxicologist
37. VOCATIONAL REHABILITATION COUNSELING:	
Rehabilitation counselor aide	
Vocational rehabilitation counselor	Rehabilitation counselor
38. MISCELLANEOUS HEALTH SERVICES:	
Animal technician	Laboratory animal technician
	Laboratory animal technolgist
	Veterinary technician
Cardiopulmonary technician	Cardiovascular technologist
	Pulmonary technologist
Community health aide	Dental health aide
	Mental health aide
	Mental health worker
	School health aide
Electrocardiograph technician	ECG (or EKG) technician
Electroencephalograph technician	EEG technician
	EEG technologist
	Medical machine technician
	(Registered) electroencephalographic technologist
Emergency medical technician	Ambulance aide
	Ambulance attendant
	Ambulance driver
	Emergency squadman
	Medical emergency technician
Extracorporeal circulation specialist	
Medical assistant	Administrative medical assistant
	Certified medical assistant
	Clinical medical assistant
	Medical office assistant
Operating room technician	Certified operating room technician
Ophthalmic assistant	Ophthalmic medical assistant
Orthoptist	Certified orthoptist
	Orthoptic technician
Physician's assistant	Anesthetic assistant
	Assistant to the primary care physician
	Child health associate
	Clinical associate
	Community health medic
	MEDEX
	Orthop(a)edic physician's assistant
	Orthopedic assistant
	Pediatric associate
	Physician's associate
	Surgeon's assistant
	Surgical assistant
	Urological physician's assistant

Appendix B

Selected Health Program Degree/Certificates, 1976-77
in Pennsylvania Colleges and Universities[a]

Four-Year Colleges and Universities

Program	HEGIS Code	Number of Institutions	Academic Awards Offered[b] EXCH	C	A	B	M	FP	D	TC	TOTAL AWARDS
Food Science & Technology	0113	3				3	2		1		6
Pathology, Human & Animal	0408	8				3	6		8		17
Pharmacology, Human & Animal	0409	7					5		7		12
Physiology, Human & Animal	0410	3					2		3		5
Microbiology	0411	10				4	8		9		21
Anatomy	0412	6					3		6		9
Biochemistry	0414	13				10	7		8		25
Biophysics	0415	3				2	2		2		6
Molecular Biology	0416	2					2		2		4
Cell Biology	0417	4				3	2		2		7
Marine Biology	0418	3				4					4
Biometrics & Biostatistics	0419	2					3		3		6
Ecology	0420	3				2	2		2		6
Entomology	0421	1					2		1		3
Genetics	0422	4					5		5		10
Radiobiology	0423	1					1				1
Nutrition, Scientific	0424	1				1	1		1		3
Neurosciences	0425	3				2	2		2		6
Toxicology	0426	2					2		1		3
Embryology	0427	1					1		1		2
Pharmacognosy	0450	2					2		2		4
Parasitology	0451	1							1		1
Animal Behavior	0452	2				3					3
Veterinary Science	0454	1					1		1		2
Biophysics/Microbiology	0456	1				1	1		1		3
Anatomy/Cell Biology	0457	1					1		1		2
Bioacoustics	0458	1							1		1
Epidemiology	0459	1						2	2		4
Radiation Physics	0460	1						1			1
Speech Correction	0815	11					11	6		2	13	32
Health Education	0837	5			1		4	5		2	6	18
Environmental Education	0854	10					3	2			9	14
Dental Hygiene	0862	8					7				8	15
Nursing Education	0894	13					11				12	23
Bioengineering & Biomedical Engineering	0905	5					1	4		4		9
Environmental & Sanitary Engineering	0922	3					2	3		1		6
Health Professions, Gen.	1201	5					7					7
Hospital & Health Care Administration	1202	3						5		1		6
Nursing	1203	29		3			28	4		1		36
Dentistry, D.D.S. or D.M.D. Degree	1204	3							3			3
Dental Specialties	1205	3			3			3				6
Medicine, M.D. Degree	1206	6							6			6
Medical Specialties	1207	2						1	1	1		3
Occupational Therapy	1208	4			1		5					6
Optometry	1209	2					3		1			4
Osteopathic Medicine, D.O. Degree	1210	1							1			1
Pharmacy	1211	6		1			8	4	1	5		19
Physical Therapy	1212	3			1		3					4
Dental Hygiene	1213	2					3					3
Public Health	1214	1					1					1

(Cont'd)

[a] Program Offerings in Pennsylvania Colleges and Universities, 1976, Unpublished Data, Pennsylvania Department of Education, Harrisburg, Pa.

[b] Degree/Certificate Code Abbreviations:

EXCH--Exchange
C --Certificate
A --Associate
B --Baccalaureate
M --Masters
FP--First Professional
D --Doctorate
TC--Teacher Education Certificate

Program	HEGIS Code	Number of Institutions	Academic Awards Offered[a] EXCH	C	A	B	M	FP	D	TC	TOTAL AWARDS
Medical Record Librarianship	1215	2				2					2
Podiatry or Podiatric Medicine	1216	1					1	1			2
Veterinary Medicine (D.V.M. Degree)	1218	1						1			1
Speech Pathology & Audiology	1220	5				3	5		2	1	11
Clinical Social Work	1222	1					1				1
Medical Laboratory Technology	1223	52	10	2		55	2				69
Dental Technology	1224	1	1			1					2
Radiologic Technology	1225	3	1			1	1				3
Anesthesiology	1250	2				1	1				2
General Practice	1251	1					1				1
Internal Medicine	1252	1					1				1
Obstetrics & Gynecological Surgery	1253	1					1				1
Otorhinolaryngology	1254	1					1				1
Pathology	1255	1					1				1
Radiology	1256	1					1				1
General Surgery	1257	1					1				1
Neuro-Surgery	1258	1					1				1
Orthopaedic Surgery	1259	1					1				1
Urologic Surgery	1260	1					1				1
Community/Preventive Medicine	1261	1					1				1
Psychiatry	1262	2					2		1		3
Inhalation Therapy	1263	1	1			1					2
Environmental Health	1264					3			1		4
Radiation Health	1265	1					1		2		3
Music Therapy	1266	4				4				1	5
Child Care Development	1267	3				3	1				4
Health Records Adminis.	1268	2				2					2
Occupational Health	1269	1					2		2		4
Public Health Service Administration/Practice	1270	1					2		2		4
Art Therapy	1271	2				1	1				2
Mental Health Technology	1273	2				1	1				2

Program	HEGIS Code	Number of Institutions	Academic Awards Offered[a] EXCH	C	A	B	M	FP	D	TC	TOTAL AWARDS
Ophthalmology	1274	1					1				1
Pre-Medicine Degree Program	1275	6				7					7
Biological Chemistry	1276	2				3					3
Proctology	1277	1					1				1
Medical Assisting Technology	1283	1				1					1
Clinical Chemistry	1284	1				1					1
Pharmaceutical Chemistry	1910	4					4		3		7
Social Work & Helping Service	2104	29	2	2	1	28	5		2		40
Man-Environment Relations	2158	1				1	2		2		5
Environmental Pollution Control	4963	3				2	4		2		8
Health Services Assistant Technology, General	5201	2		1	2						3
Dental Assistant Technology	5202	2		2							2
Dental Hygiene Technology	5203	3		3							3
Medical or Biological Laboratory Assistant Technology	5205	5		2	3						5
Radiologic Technology	5207	6	1	2	5						8
Nursing, R.N.	5208	6		2	4						6
Nursing, Practical	5209	1		1							1
Medical Assistant & Medical Office Asst. Technology	5214	1		1							1
Inhalation Therapy Technologies	5215	3			3						3
Cytotechnology	5251	1		1							1
Histologic Technology	5252	1		1							1
Cardiovascular Technology	5253	1			1						1
Physician Assistant Technology	5254	3		2	1						3
Environmental Technology, General	5450	1		1	1						2
Branch Campuses											
Food Science & Technology	0113	17				17					17
Pharmacology, Human & Animal	0409	1					1		1		2
Physiology, Human & Animal	0410	1					1		1		2

(Cont'd)

Appendix B (Cont'd)

Program	HEGIS Code	Number of Institutions	Academic Awards Offered*								TOTAL AWARDS
			EXCH	C	A	B	M	FP	D	TC	
Microbiology	0411	17				16	1		1		18
Anatomy	0412	11					1		1		2
Biochemistry	0414	18				18					18
Biophysics	0415	17				17					17
Biophysics/Microbiology	0456	2				2					2
Health Education	0837	1					1				1
Dental Hygiene	0862	2				2					2
Nursing Education	0894	3				3				1	4
Environmental & Sanitary Engineering	0922	17				17					17
Health Professions, General	1201	21				21					21
Nursing	1203	22				22					22
Medicine, M.D. Degree	1206	1						1			1
Pharmacy	1211	3				3					3
Physical Therapy	1212	2				2					2
Speech Pathology & Audiology	1220	3				3	1				4
Medical Laboratory Technology	1223	18				18					18
Inhalation Therapy Technologies	1263	2	2			2					4
Child Care/Development	1267	2				2					2
Health Records Admin's.	1268	2				2					2
Laboratory Animal Medicine	1272	1					1				1
Pre-Medicine Degree Program	1275	16				16					16
Biological Chemistry	1276	1					1		1		2
Foods & Nutrition	1306	2				2					2
Social Work & Helping Service	2104	21				21					21
Man-Environment Relations	2158	17				17					17
Public Health Administration	4969	1					1				1
Medical or Biomedical Laboratory Assistant Technology	5205	1			1						1
Nursing, R.N.	5208	2			2						2
Two-Year Institutions											
Dentistry, D.D.S. or D.M.D. Degree	1204	1			1						1
Occupational Therapy	1208	1			1						1

Program	HEGIS Code	Number of Institutions	Academic Awards Offered*								TOTAL AWARDS
			EXCH	C	A	B	M	FP	D	TC	
Optometry	1209	2			2						2
Pharmacy	1211	2			2						2
Veterinary Medicine, D.V.M. Degree	1218	1			1						1
Pre-Medicine Degree Program	1275	1			1						1
Health Services Assistant Technology, General	5201	2		1	1						2
Dental Assistant Technology	5202	4		2	2						4
Dental Hygiene Technology	5203	2			2						2
Dental Hygiene Technology	5204	1			1						1
Medical or Biological Laboratory Assistant Technology	5205	6			6						6
Animal Laboratory Assistant Technology	5206	1			1						1
Radiologic Technology	5207	3			3						3
Nursing, R.N.	5208	13			13						13
Nursing, Practical	5209	9	1	7	2						10
Occupational Therapy Technology	5210	2			2						2
Surgical Technology	5211	2		2							2
Optical Technology	5212	1			1						1
Medical Record Technology	5213	2		2	2						4
Medical Assistant & Medical Office Assistant	5214	8		3	6						9
Inhalation Therapy Technologies	5215	4	1	3	4						8
Psychiatric Technology	5216	4		2	3						5
Electro Diagnostic Technology	5217	1			1						1
Physical Therapy Technology	5219	1			1						1
Dietetic Technology	5250	1		1	1						2
Occupational Safety & Health Education Technology	5256	1			1						1
Emergency Medical Technology	5257	1		1	1						2
Sanitation & Public Health Inspection Technology	5408	2		1	2						3
Environmental Technology, General	5450	2		1	1						2

Appendix C

Selected Education Programs in the Hospital and Health Fields
(AMA Approved/Accredited) in Pennsylvania, 1974[a]

County	Program	Location	Institution
Allegheny	Blood Bank Technology	Pittsburgh	Central Blood Bank of Pittsburgh
		Washington	Washington Hospital
	Certified Laboratory Assistant	Natrona Heights	Allegheny Valley Hospital
		Pittsburgh	South Side Hospital of Pittsburgh
			University Health Center Hospital of Pittsburgh
	Cytotechnology	Pittsburgh	Allegheny General Hospital (William H. Singer Memorial Research Institute)
			Presbyterian-Univ. Health Ctr. of Pittsburgh
	Dental Hygiene	Pittsburgh	University of Pittsburgh
	Dietetics	Pittsburgh	Shadyside Hospital
	Hospital Administration	Pittsburgh	University of Pittsburgh, Graduate School of Public Health
	Library Science	Pittsburgh	University of Pittsburgh, Graduate School of Library and Information Sciences
	Medical Assistants	Pittsburgh	Median School
	Medical Record Administrator	Pittsburgh	University of Pittsburgh
	Medical Record Technician	Pittsburgh	Community College of Allegheny County
	Medical Technology	McKeesport	McKeesport Hospital
		Pittsburgh	Allegheny General Hospital
			Mercy Hosp. of Pittsburgh
			University of Pittsburgh
			Western Pennsylvania Hospital
	Physical Therapy	Pittsburgh	University of Pittsburgh
	Public Health	Pittsburgh	University of Pittsburgh, Graduate School of Public Health
	Radiation Therapy Technology	Pittsburgh	Allegheny General Hospital
			Presbyterian-University Hospital
	Radiologic Technology	Pittsburgh	Allegheny General Hospital
			Mercy Hospital of Pittsburgh
			Montefiore Hospital
			Presbyterian-University Hospital
			Robert Morris College
			Shadyside Hospital
			Western Pennsylvania Hospital
		Homestead	Homestead Hospital
		McKeesport	McKeesport Hospital
		McKees Rocks	Ohio Valley General Hospital
		Sewickley	Sewickley Valley Hospital
	Respiratory Therapy	Pittsburgh	Indiana University of Pennsylvania
			University Health Center Hospital of Pittsburgh
			Western Pennsylvania Hospital
	Social Work	Pittsburgh	University of Pittsburgh, School of Social Work
	Speech Pathology and Audiology	Pittsburgh	University of Pittsburgh
Armstrong	Radiologic Technology	Kittanning	Armstrong County Memorial Hospital
Beaver	Radiologic Technology	Aliquippa	Aliquippa Hospital
		Beaver Falls	Medical Center of Beaver County
		Rochester	Medical Center of Beaver County, Inc.
Bedford	Certified Laboratory Assistant	Everett	Memorial Hospital of Bedford County
Berks	Medical Technology	Reading	Reading Hospital
			St. Joseph Hospital
	Radiologic Technology	Reading	Community General Hospital
			Reading Hospital
			St. Joseph Hospital

(Cont'd)

[a] American Hospital Association Guide to the Health Care Field, 1975 ed., Chicago, Ill.

County	Program	Location	Institution
Blair	Certified Laboratory Assistant	Altoona	Mercy Hospital
	Medical Technology	Altoona	Altoona Hospital
	Radiologic Technology	Altoona	Altoona Hospital Mercy Hospital
Bradford	Medical Technology	Sayre	Robert Packer Hospital
	Radiologic Technology	Sayre	Robert Packer Hospital
	Respiratory Therapy	Sayre	Robert Packer Hospital
Bucks	Medical Technology	Bristol	Lower Bucks Hospital
Cambria	Certified Laboratory Assistant	Johnstown	Lee Hospital-Conemaugh Valley Memorial Hospital Mercy Hospital of Johnstown
	Occupational Therapy Assistant	Cresson	Mount Aloysius Junior College
	Radiologic Technology	Johnstown	Lee Hospital
Centre	Dietetics	University Park	Pennsylvania State University
	Speech Pathology & Audiology	University Park	Pennsylvania State University
Chester	Certified Laboratory Assistant	West Chester	Chester County Hospital
	Radiologic Technology	Coatesville	Coatesville Hospital
Clearfield	Radiologic Technology	Clearfield DuBois	Clearfield Hospital DuBois Hospital
Crawford	Certified Laboratory Assistant	Meadville	Crawford County School
Cumberland	Certified Laboratory Assistant	Camp Hill	Holy Spirit Hospital
	Radiologic Technology	Carlisle Camp Hill	Carlisle Hospital Holy Spirit Hospital
Dauphin	Certified Laboratory Assistant	Harrisburg	Harrisburg Hospital
	Medical Technology	Harrisburg	Harrisburg Hospital Polyclinic Hospital
	Nuclear Medicine	Harrisburg	Harrisburg Hospital Polyclinic Hospital
	Primary Care Physician Assistant	Hershey	Pennsylvania State University
	Radiologic Technology	Harrisburg Hershey	Harrisburg Hospital Polyclinic Hospital Milton S. Hershey Medical Center
Delaware	Radiologic Technology	Chester	Crozer-Chester Medical Center Sacred Heart General Hospital
	Respiratory Therapy	Chester	Crozer-Chester Medical Center
Erie	Certified Laboratory Assistant	Erie	Hamot Medical Center
	Medical Technology	Erie	St. Vincent Hospital
	Radiologic Technology	Erie	Hamot Medical Center St. Vincent Hospital
Franklin	Certified Laboratory Assistant	Chambersburg	Chambersburg Hospital
Greene	Radiologic Technology	Waynesburg	Greene County Memorial Hospital
Lackawanna	Certified Laboratory Assistant	Scranton	Moses Taylor Hospital
	Medical Technology	Scranton	Scranton State General Hospital
	Radiologic Technology	Scranton	Community Medical Center Moses Taylor Hospital Scranton State General Hospital
(Cont'd)	Social Work	Scranton	Marywood College, School of Social Work

County	Program	Location	Institution
Lancaster	Certified Laboratory Assistant	Lancaster	Lancaster General Hospital
	Medical Technology	Lancaster	Lancaster General Hospital St. Joseph Hospital
	Radiologic Technology	Lancaster	Lancaster General Hospital St. Joseph Hospital
	Respiratory Therapy	Lancaster	St. Joseph Hospital
Lawrence	Radiologic Technology	New Castle	St. Francis Hospital of New Castle
Lehigh	Medical Technology	Allentown	Allentown Hospital Association Sacred Heart Hospital
	Occupational Therapy Assistant	Schnecksville	Lehigh County Community College
	Radiologic Technology	Allentown	Allentown Hospital Association Sacred Heart Hospital
Luserne	Certified Laboratory Assistant	Hazleton	St. Joseph Hospital
	Medical Technology	Wilkes-Barre	Wilkes-Barre General Hospital
	Radiologic Technology	Hazleton Wilkes-Barre Dallas	St. Joseph Hospital Wilkes-Barre General Hospital Mercy Hospital Misericordia College
Lycoming	Medical Technology	Williamsport	Divine Providence Hospital Williamsport Hospital
	Radiologic Technology	Williamsport	Williamsport Area Community College
McKean	Radiologic Technology	Bradford	Bradford Hospital
Mercer	Radiologic Technology	Sharon	Sharon General Hospital
Monroe	Certified Laboratory Assistant	East Stroudsburg	General Hospital of Monroe County
Montgomery	Certified Laboratory Assistant	Norristown	Sacred Heart Hospital
	Medical Technology	Abington Bryn Mawr	Abington Memorial Hospital Bryn Mawr Hospital
	Radiologic Technology	Abington Bryn Mawr Elkins Park Meadowbrook Norristown	Abington Memorial Hospital Bryn Mawr Hospital Rolling Hill Hospital & Diagnostic Center Holy Redeemer Hospital Montgomery Hospital Sacred Heart Hospital
	Social Work	Bryn Mawr	Bryn Mawr College, Graduate School of Social Work and Social Research
Montour	Cytotechnology	Danville	Geisinger Medical Center
	Radiologic Technology	Danville	Geisinger Medical Center
Northampton	Dental Hygiene	Bethlehem	Northampton County Area Community College
	Medical Technology	Bethlehem	St. Luke's Hospital
	Radiologic Technology	Easton	Easton Hospital
Philadelphia	Certified Laboratory Assistant	Philadelphia	John F. Kennedy Memorial Hospital Medical College of Pennsylvania Murrell Dobbins Area Vocational-Technical School
	Cytotechnology	Philadelphia	Hahnemann Medical College and Hospital Hospital of the University of Penna. Pennsylvania Hospital Presbyterian University of Pa. Medical Center Thomas Jefferson University
	Dental Hygiene	Philadelphia	Temple University University of Pennsylvania
	Hospital Administration	Philadelphia	Temple University, Graduate Program in Health Administration University of Pennsylvania, Graduate Program in Health Care Administration

(Cont'd)

County	Program	Location	Institution
Philadelphia (Cont'd)	Library Science	Philadelphia	Drexel University, Graduate School of Library Science
	Medical Record Administrator	Philadelphia	Temple University
	Medical Record Technician	Philadelphia	Community College of Philadelphia
	Medical Technology	Philadelphia	Hahnemann Medical College and Hospital Nazareth Hospital Pennsylvania Hospital Temple University Thomas Jefferson University University of Pennsylvania
	Occupational Therapy	Philadelphia	Temple University University of Pennsylvania
	Physical Therapy	Philadelphia	Temple University University of Pennsylvania
	Podiatry	Philadelphia	Pennsylvania College of Podiatric Medicine
	Primary Care Physician's Assistant	Philadelphia	Hahnemann Medical College & Hospital
	Radiation Therapy Technology	Philadelphia	Fox Chase Center for Cancer and Allied Health Diseases
	Radiologic Technology	Philadelphia	Albert Einstein Medical Center-Northern Division and Daroff Division Chestnut Hill Hospital Episcopal Hospital Germantown Dispensary and Hospital Graduate Hospital of the University of Pennsylvania Hahnemann Medical College and Hospital Hospital of the University of Penna. Jeanes Hospital Lankenau Hospital Medical College of Pennsylvania Mercy Catholic Medical Center Methodist Hospital Murrell Dobbins Area Vocational Technical School Nazareth Hospital Pennsylvania Hospital Philadelphia General Hospital St. Joseph's Hospital Thomas Jefferson University Veterans Administration Hospital
	Respiratory Therapy	Philadelphia	Community College of Philadelphia
	Social Work	Philadelphia	Temple University, School of Social Admin. University of Penna., School of Social Work
	Speech Pathology and Audiology	Philadelphia	Temple University
Schuylkill	Certified Laboratory Assistant	Ashland	Ashland State General Hospital
	Radiologic Technology	Pottsville	Pottsville Hospital & Warne Clinic
Somerset	Radiologic Technology	Somerset	Somerset Community Hospital
Venango	Radiologic Technology	Franklin	Franklin Hospital
Washington	Medical Technology	Washington	Washington Hospital
	Radiologic Technology	Washington	Washington Hospital
Westmoreland	Certified Laboratory Assistant	Greensburg	Westmoreland Hospital Association
	Medical Technology	Latrobe	Latrobe Area Hospital
	Radiologic Technology	Greensburg New Kensington	Westmoreland Hospital Citizens General Hospital
York	Medical Record Administrator	York	York College
	Medical Technology	York	York Hospital
	Radiologic Technology	York	York Hospital

Appendix D

Selected Health Occupations Training Programs Administered by Hospitals in Pennsylvania, 1974[a]

County	Program	Location	Institution	Accreditation
Allegheny	Electroencephalographic Technician	Pittsburgh	Allegheny General Hospital Pittsburgh Hospital	No No
	Medical Photography	Pittsburgh	Mercy Hospital of Pittsburgh Western Pennsylvania Hospital	No No
	Nuclear Medicine Technologist/Technician	Pittsburgh	Presbyterian University Hospital St. Francis General Hospital	In Process Full
	Radiation Therapy Technologist/Technician	Pittsburgh	St. Francis General Hospital	Full
	Respiratory Therapy Technician	Pittsburgh	St. Francis General Hospital	In Process
Bradford	Histologic Technician	Sayre	Robert Packer Hospital	Full
Dauphin		Harrisburg	Harrisburg Hospital	Full
Delaware	Nuclear Medicine Technologist/Technician	Darby	Mercy Catholic Medical Center	In Process
	Radiation Therapy Technologist/Technician	Darby	Mercy Catholic Medical Center	Full
	Radiologic Technologist/Technician	Darby	Mercy Catholic Medical Center	Full
Erie	Dietician	Erie	St. Vincent Hospital	Full
Lycoming	Cardiopulmonary Technician	Williamsport	Divine Providence Hospital	No
	Respiratory Therapist	Williamsport	Williamsport Hospital	In Process
Montgomery	Cardiopulmonary Technician	Abington	Abington Memorial Hospital	No
	Electroencephalographic Technician	Abington	Abington Memorial Hospital	No
	Physical Therapy Assistant/Aide	Elkins Park	Rolling Hill Hospital Diagnostic Center	No
Montour	Dietitian/Nutritionist	Danville	Geisinger Medical Center	Full
	Histologic Technician	Danville	Geisinger Medical Center	Full

(Cont'd)

[a]Health Occupations Training Programs Administered by Hospitals, U.S. Department of Health, Education and Welfare, Bureau of Health Resources Development, Washington, D.C., December 1974.

Appendix D (Cont'd)

County	Program	Location	Institution	Accreditation
Philadelphia	Cytotechnology	Philadelphia	Philadelphia General Hospital	In Process
	Dialysis Technician	Philadelphia	Hahnemann Medical College & Hospital	In Process
	Dietitian	Philadelphia	Philadelphia General Hospital	Full
	Electrocardiograph Technician	Philadelphia	Chestnut Hill Hospital	No
			Episcopal Hospital	No
			Hahnemann Medical College & Hospital	No
	Electroencephalographic Technician	Philadelphia	Graduate Hospital of Univ. of Penna.	No
	Histologic Technician	Philadelphia	Graduate Hospital of Univ. of Penna.	Full
			Hospital of University of Penna.	Full
			Philadelphia General Hospital	No
			St. Agnes Hospital	No Report
			Thomas Jefferson University	In Process
	Mental Health Technologist	Philadelphia	Hahnemann Medical College & Hospital	No
	Mental Health Associate/ Technician	Philadelphia	Institute of Penna. Hospital	No
	Respiratory Therapist	Philadelphia	Hahnemann Medical College & Hospital	In Process
			Temple University Hospital	In Process
	Respiratory Therapy Technician	Philadelphia	Presbyterian University of Penna. Medical Center	In Process
Union	Dental Technician	Johnstown	Penn Rehabilitation Center	No
Warren	Respiratory Therapist	Warren	Warren Hospital	No
Westmoreland	Electrocardiograph Technician	Greensburg	Westmoreland Hospital	No
	Rehabilitation Therapy Assistant/Aide	Greensburg	Westmoreland Hospital	No
	Rehabilitation Therapist	New Kensington	Citizens General Hospital	No
	Speech/Hearing Therapy Aide	Latrobe	Latrobe Area Hospital	No
York	Electroencephalographic Technician	York	York Hospital	In Process

Appendix E

AMA Accredited Allied Medical Education Programs in Pennsylvania, 1974[a]

	Entrance Requirements[b]	Length of Program	Student Capacity	Classes Begin	Tuition	Stipend	Scholarship	Certificate or Degree Granted
Assistant to the Primary Care Physician								
PHILADELPHIA								
Hahnemann Medical College and Hospital	G	21 mos.	40	Sept.	$1,650 Year	No	Yes	AS
UNIVERSITY PARK								
Pennsylvania State University	G, P, E	15 mos.	15	April-Oct.	None	Yes	No	Cert.
Cytotechnologist								
DANVILLE								
Geisinger Medical Center	2 yrs. col.	6 mos.	4	Sept.	None	No	No	Cert.
PHILADELPHIA								
Hahnemann Medical College and Hospital	2 yrs. col.	12 mos.	8	Jan.-July	$600	Yes	Yes	Cert.
Hospital of the University of Pennsylvania	2 yrs. col.	12 mos.	6	Aug.	None	Yes	No	Cert.
Pennsylvania Hospital	2 yrs. col.	6 mos.	4	Jan.-July	$30	Yes	Yes	Cert.
Presbyterian--University of Pennsylvania Medical Center	2 yrs. col.	6 mos.	4	Varies	$600	Yes	No	Cert.
Thomas Jefferson Univ.	2 yrs. col.	12 mos.	10	Aug.	$600	No	Yes	Cert.
PITTSBURGH								
Presbyterian--University Hospital	2 yrs. col.	12 mos.	4	Jan.-July	None	Yes	No	Cert.
William H. Singer Memorial Research Institute--Allegheny General Hosp.	2 yrs. col.	12 mos.	3	July	None	Yes	No	Cert.
Histologic Technician								
DANVILLE								
Geisinger Medical Center	H.S.	-------	3	Sept.	----	Yes	---	-----
PHILADELPHIA								
Hospital of the University of Pennsylvania	2 yrs. col.	12 mos.	6	July	None	Yes	No	Cert.

[a] Allied Medical Education Directory, 1974, Council on Medical Education, American Medical Association, Chicago, Ill.

[b] Legend: Table of Entrance Requirements for the Assistant to the Primary Care Physician

A. Preference for health experience
B. Two years health experience
C. Three years health experience
D. One year patient care experience
E. Two years patient care experience
F. Three years patient care experience
G. H.S. diploma or equivalent
H. One year college
I. Post H.S. medical training and/or college education
J. Two years post H.S. classroom training
K. Two years college or equivalent
L. Two years medical corpsman or two years college and/or patient care experience
M. Work experience with American Indians
N. Medical service airman with three years service
O. Three years medical experience and/or education
P. Ex-military corpsman with minimum 14 weeks medical training
Q. Registered Nurse (2, 3 or 4 year program)
R. Two years ambulatory care experience

Appendix E (Cont'd)

	Entrance Requirements	Length of Program	Student Capacity	Classes Begin	Tuition	Stipend	Scholarship	Certificate or Degree Granted
Laboratory Assistant								
ALTOONA								
Mercy Hospital	H.S.	24 mos.	10	July	$175	Yes	No	Cert.
ASHLAND								
Ashland State Gen. Hosp.	H.S.	18 mos.	6	July	None	No	No	Cert.
CAMP HILL								
Holy Spirit Hospital	H.S.	12 mos.	6	Sept.	----	No	No	Cert.
CHAMBERSBURG								
Chambersburg Hospital	H.S.	14 mos.	10	June	$1,000	No	Yes	Cert.
EAST STROUDSBURG								
General Hosp. of Monroe County	H.S.	12 mos.	6	Aug.	None	No	No	Cert.
ERIE								
Hamot Medical Center	H.S.	12 mos.	10	Sept.	None	Yes	No	Cert.
EVERETT								
Memorial Hosp. of Bedford County	H.S.	12 mos.	5	Aug.	None	No	No	Cert.
GREENSBURG								
Westmoreland Hosp. Assoc.	H.S.	12 mos.	10	July	$150	No	No	Cert.
HARRISBURG								
Harrisburg Hospital	H.S.	12 mos.	15	Aug.	Year $1,000	No	No	Cert.
HAZLETON								
St. Joseph Hospital	H.S.	12 mos.	8	July	None	No	No	Cert.
JOHNSTOWN								
Lee Memorial Hospital	H.S.	24 mos.	20	June	None	Yes	No	Cert.
Mercy Hospital	H.S.	14 mos.	8	July	None	Yes	No	Cert.
LANCASTER								
Lancaster General Hosp.	H.S.	12 mos.	10	July	None	No	No	Cert.
MEADVILLE								
Crawford County School for CLA	H.S.	12 mos.	6	July	----	---	---	Cert.
NATRONA HEIGHTS								
Allegheny Valley Hosp.	H.S.	18 mos.	10	July	None	No	No	Cert.
NORRISTOWN								
Sacred Heart Hospital	H.S.	12 mos.	4	July	None	No	No	Cert.
PHILADELPHIA								
JFK Memorial Hospital	H.S.	21 mos.	6	Oct.	$30 mo. MONRES	No	Yes	Cert.
Medical College of Pa.	H.S.	22 mos.	8	Sept.	$225	No	No	Cert.
PHILADELPHIA								
Murrell Dobbins Area Vo-Tech School	H.S.	24 mos.	24	Sept.	$168	No	No	Cert.
PITTSBURGH								
South Side Hospital of Pittsburgh	H.S.	18 mos.	4	July	None	Yes	No	Cert.
Univ. of Pittsburgh Health Center	H.S.	18 mos.	8	March-Sept.	None	No	No	Cert.

(Cont'd)

	Entrance Requirements[b]	Length of Program	Student Capacity	Classes Begin	Tuition	Stipend	Scholarship	Certificate or Degree Granted
Lab. Asst. (Cont'd)								
SCRANTON								
Moses Taylor Hospital	H.S.	12 mos.	5	Aug.	None	Yes	No	Cert.
WEST CHESTER								
Chester County Hospital	H.S.	18 mos.	6	Sept.	None	Yes	Yes	Cert.
Medical Assistant								
PITTSBURGH								
Median School	H.S.	6 mos.	103	Sept.	$1,395 Sem	No	No	Cert.
Medical Record Personnel								
PHILADELPHIA								
Temple University	2 yrs. col.	24 mos.	24	Sept.	$525 Sem. Res., $975 for NONRES	No	Yes	BS
PITTSBURGH								
University of Pittsburgh	H.S.	48 mos.	30	Sept.	$500 Res. $1,000 NONRES	No	Yes	BS
Medical Technologist								
ABINGTON								
Abington Memorial Hosp.	3 yrs. col.	12 mos.	16	July	None	No	Yes	BS
ALLENTOWN								
Allentown Hospital Assoc.	3 yrs. col.	12 mos.	12	July	None	Yes	No	BS
Sacred Heart Hospital	3 yrs. col.	12 mos.	10	July	None	Yes	Yes	BS
ALTOONA								
Altoona Hospital	3 yrs. col.	12 mos.	4	June	None	Yes	No	BA, BS
BETHLEHEM								
St. Luke's Hospital	3 yrs. col.	12 mos.	6	July	None	Yes	No	BS
BRISTOL								
Lower Bucks Hospital	3 yrs. col.	12 mos.	6	July	None	Yes	No	Cert.
BRYN MAWR								
Bryn Mawr Hospital	3 yrs. col.	12 mos.	10	July	None	Yes	No	BS, Cert.
ERIE								
St. Vincent Hospital	3 yrs. col.	12 mos.	16	Aug.	$200 YR	No	Yes	BS, Cert.
HARRISBURG								
Harrisburg Hospital	3 yrs. col.	12 mos.	20	Aug.	$1,100	No	No	BS
Harrisburg Polyclinic	3 yrs. col.	12 mos.	6	July	None	Yes	No	BS, Cert.
LANCASTER								
Lancaster General Hosp.	3 yrs. col.	12 mos.	12	July	None	Yes	No	BS
St. Joseph's Hospital	3 yrs. col.	12 mos.	10	Aug.	None	No	Yes	BA, BS, Cert.
LATROBE								
Latrobe Area Hospital	3 yrs. col.	12 mos.	10	July	$350 Sem. Res., $700 for NONRES	No	Yes	BS, Cert.
MCKEESPORT								
McKeesport Hospital	3 yrs. col.	12 mos.	10	Sept.	None	Yes	No	BS, Cert.
PHILADELPHIA								
Hahnemann Medical College and Hospital	2 yrs. col.	21 mos.	24	Sept.	$1,500 YR	No	No	BS
Mercy Catholic Medical Center	3 yrs. col.	12 mos.	8	June	None	Yes	No	BS

(Cont'd)

Appendix E (Cont'd)

	Entrance Requirements[b]	Length of Program	Student Capacity	Classes Begin	Tuition	Stipend	Scholarship	Certificate or Degree Granted
Medical Technol. (Cont'd)								
Nazareth Hospital	3 yrs. col.	14 mos.	12	Sept.	$250	No	No	BS
Pennsylvania Hospital	3 yrs. col.	12 mos.	12	July	$150	No	No	BS, Cert.
Temple University	2 yrs. col.	24 mos.	40	Sept.	$485 Sem. Res., $935 for NONRES	No	Yes	BS
Thomas Jefferson Univ.	2 yrs. col.	24 mos.	24	Sept.	$2,000 YR	No	Yes	BS
University of Pennsylvania	Univ. Req.	42 mos.	20	Sept.	$1,582 Sem.	No	Yes	BS
PITTSBURGH								
Mercy Hosp. of Pittsburgh	3 yrs. col.	12 mos.	16	June	$100 YR	No	No	BA, BS
University of Pittsburgh	2 yrs. col.	11 mos.	30	Sept.	$485 Sem. Res., $980 for NONRES	No	Yes	BS
Western Penna. Hosp.	3 yrs. col.	12 mos.	20	Sept.	$750 YR	No	Yes	BS, Cert.
William H. Singer Memorial Research Inst., Allegheny General Hospital	3 yrs. col.	12 mos.	15	June	None	No	Yes	BS
READING								
Reading Hospital	3 yrs. col.	12 mos.	8	Jan.-July	None	Yes	No	Cert.
St. Joseph Hospital	3 yrs. col.	12 mos.	6	July	None	Yes	No	Cert.
SAYRE								
Robert Packer Hospital	3 yrs. col.	12 mos.	10	Sept.	$320 YR	No	No	BS
SCRANTON								
Scranton State Gen. Hosp.	3 yrs. col.	12 mos.	8	Jan.-June	None	Yes	Yes	Cert.
WASHINGTON								
Washington Hospital	3 yrs. col.	12 mos.	10	Sept.	None	Yes	No	BS
WILKES BARRE								
Wilkes-Barre Community Hos.	3 yrs. col.	12 mos.	10	Aug.	None	No	No	Cert.
WILLIAMSPORT								
Divine Providence Hospital	3 yrs. col.	12 mos.	6	Aug.	None	Yes	Yes	Cert.
Williamsport Hospital	3 yrs. col.	12 mos.	8	Aug.	None	No	No	BA
YORK								
York Hospital	3 yrs. col.	12 mos.	8	Sept.	None	No	No	BS
Nuclear Medicine Technologist/ Technician								
HARRISBURG								
Harrisburg Hospital	MT, RT, RN	12 mos	12	Sept.	$200 Sem.	No	Yes	Cert.
Harrisburg Polyclinic Hospital	MT, RT, RN, BS	12 mos.	5	Sept.	None	Yes	No	Cert.
Occupational Therapist								
PHILADELPHIA								
Temple University	2 yrs. col.	18 mos.	30	Sept.	$525 Sem. Res., $975 for NONRES	No	Yes	BS, Cert.
Univ. of Pennsylvania	Univ. Req.	51 mos.	30	Sept.	$3,165 YR	No	Yes	BS
Physical Therapist								
PHILADELPHIA								
Temple University	2 yrs. col.	21 mos.	32	Sept.	$525 Sem. Res., $975 for NONRES	No	Yes	BS
Univ. of Pennsylvania	Univ. Req.	39 mons.	30	Sept.	$3,165 YR	No	Yes	BS
PITTSBURGH								
Univ. of Pittsburgh	2 yrs. col.	19 mos.	50	Sept,	Univ.	No	Yes	BS

(Cont'd)

Appendix E (Cont'd)

	Entrance Requirements[b]	Length of Program	Student Capacity	Classes Begin	Tuition	Stipend	Scholarship	Certificate or Degree Granted
Radiation Therapy Technologist (Cont'd)								
PHILADELPHIA								
Fox Chase Center for Cancer & Allied Health Diseases	RT, RN	12 mos.	12	July	$200 mo.	Yes	No	Cert.
PITTSBURGH								
Allegheny Gen. Hosp.	H.S.	24 mos.	4	Sept.	None	Yes	No	Cert.
Presbyterian--Univ. Hosp.	H.S.	24 mos.	10	July	$180 YR	No	---	Cert.
Radiologic Technologist								
ABINGTON								
Abington Memorial Hosp.	H.S.	24 mos.	38	July	None	Yes	No	Cert.
ALIQUIPPA								
Aliquippa Hospital	H.S.	24 mos.	12	July	None	Yes	No	Cert.
ALLENTOWN								
Allentown Hosp. Assoc.	H.S.	24 mos.	14	Sept.	$100	Yes	No	Cert.
Sacred Heart Hosp.	H.S.	24 mos.	10	Jan.	None	Yes	No	Cert.
ALTOONA								
Altoona Hospital	H.S.	24 mos.	18	July	None	Yes	No	Cert.
Mercy Hospital	H.S.	24 mos.	8	Sept.	$175 2 yrs.	Yes	No	Cert.
BEAVER FALLS								
Medical Center of Beaver County	H.S.	24 mos.	12	June	None	Yes	No	Cert.
BRADFORD								
Bradford Hospital	H.S.	24 mos.	14	Sept.	$100	Yes	No	Cert.
BRYN MAWR								
Bryn Mawr Hospital	H.S.	24 mos.	20	----	----	---	---	Cert.
CAMP HILL								
Holy Spirit Hospital	H.S.	24 mos.	16	July	$200	Yes	No	Cert.
CARLISLE								
Carlisle Hospital	H.S.	24 mos.	6	July	$100 YR	Yes	No	Cert.
CHESTER								
Crozer-Chester Med. Ctr.	H.S.	24 mos.	25	July	$150	Yes	No	Cert.
Sacred Heart General Hosp.	H.S.	24 mos.	14	July	None	Yes	Yes	Cert.
CLEARFIELD								
Clearfield Hospital	H.S.	24 mos.	3	July	None	Yes	No	Cert.
COATESVILLE								
Coatesville Hospital	H.S	24 mos.	10	Sept.	None	No	No	Cert.
DALLAS								
College Misericordia	H.S.	24 mos.	34	Sept.	$1,500 YR	No	Yes	AAS
DANVILLE								
Geisinger Medical Center	H.S.	24 mos.	24	Sept.	None	Yes	No	Cert.
DUBOIS								
DuBois Hospital	H.S.	24 mos.	8	Sept.	$75	Yes	No	Cert.
EASTON								
Easton Hospital	H.S.	24 mos.	8	July	None	Yes	No	Cert.

(Cont'd)

	Entrance Requirements[b]	Length of Program	Student Capacity	Classes Begin	Tuition	Stipend	Scholarship	Certificate or Degree Granted
Radiologic Technol. (Cont'd)								
ELKINS PARK								
Rolling Hill Hosp. & Diagnostic Center	H.S.	24 mos.	12	July	$10/YR	Yes	No	Cert.
ERIE								
Hamot Medical Center	H.S.	24 mos.	18	Sept.	---	No	No	Cert.
St. Vincent Hospital	H.S.	24 mos.	16	Sept.	----	No	Yes	Cert.
FRANKLIN								
Franklin Hospital	H.S.	24 mos.	8	June	None	Yes	No	Cert.
GREENSBURG								
Westmoreland Hosp. Assoc.	H.S.	24 mos.	12	July	$100	Yes	No	Cert.
HARRISBURG								
Harrisburg Hospital	H.S.	24 mos.	16	July	None	Yes	No	Cert.
Harrisburg Polyclinic	H.S.	24 mos.	10	Sept.	None	Yes	No	Cert.
MEADOWBROOK								
Holy Redeemer Hospital	H.S.	24 mos.	20	July	None	Yes	No	Cert.
NEW CASTLE								
St. Francis Hospital	H.S.	24 mos.	10	July	None	Yes	No	Cert.
NEW KENSINGTON								
Citizens General Hospital	H.S.	24 mos.	12	Sept.	None	No	No	Cert.
NORRISTOWN								
Montgomery Hospital	H.S.	24 mos.	12	Sept.	$50	Yes	No	Cert.
Sacred Heart Hospital	H.S.	24 mos.	14	July	$100 2 yrs.	Yes	No	Cert.
PHILADELPHIA								
Albert Einstein Medical Center-Northern Divi.	H.S.	24 mos.	40	Sept.	$200	Yes	No	Cert.
Chestnut Hill Hospital	H.S.	24 mos.	8	June-Sept.	$55 Sem. Res., $163 for NONRES	No	No	Cert.
Episcopal Hospital	H.S.	24 mos.	20	July	$250	Yes	No	Cert.
Germantown Disp. & Hosp.	H.S.	24 mos.	10	Sept.	$60	Yes	Yes	Cert.
Graduate Hosp. of Univ. of Pennsylvania	H.S.	24 mos.	16	Sept.	None	Yes	No	Cert.
Hahnemann Med. Col. & Hospital	H.S.	24 mos.	36	Aug.	$250 YR	No	No	Cert.
PHILADELPHIA								
Hospital of Univ. of Pa.	H.S.	24 mos.	40	Aug.	$100	Yes	No	Cert.
Lankenau Hospital	H.S.	24 mos.	24	July	None	Yes	No	Cert.
Medical Col. of Penna.	H.S.	24 mos.	12	July	None	Yes	No	Cert.
Mercy Catholic Med. Ctr.	H.S.	24 mos.	22	July	None	Yes	No	Cert.
Methodist Hospital	H.S.	24 mos.	8	Sept.	None	Yes	No	Cert.
Murrell Dobbins Area Vo-Tech School	H.S.	24 mos.	20	July-Sept.	Varies	Yes	No	Cert.
Nazareth Hospital	H.S.	24 mos.	24	July	$250	Yes	No	Cert.
Pennsylvania Hospital	H.S.	24 mos.	20	Aug.	None	Yes	No	Cert.
Philadelphia Gen. Hosp.	H.S.	24 mos.	50	Sept.	None	No	No	Cert.

(Cont'd)

	Entrance Requirements[a]	Length of Program	Student Capacity	Classes Begin	Tuition	Stipend	Scholarship	Certificate or Degree Program
Radiologic Technol. (Cont'd)								
St. Joseph's Hospital	H.S.	24 mos.	8	July	$100 Sem.	Yes	No	Cert.
Thomas Jefferson Univ.	H.S.	24 mos.	46	Sept.	$300 YR	Yes	Yes	Cert.
Veterans Admin. Hosp.	H.S.	24 mos.	20	March	None	Yes	No	Cert.
PITTSBURGH								
Allegheny Gen. Hosp.	H.S.	24 mos.	10	Sept.	None	Yes	No	Cert.
Mercy Hospital of Pittsburgh	H.S.	24 mos.	35	July	$300 2 yrs.	No	No	Cert.
Montefiore Hospital	H.S.	24 mos.	24	Oct.	None	No	No	Cert.
Presbyterian--University Hospital	H.S.	24 mos.	40	July	$360 2 yrs.	No	No	Cert.
Robert Morris College	H.S.	30 mos.	10	June	$46 Cr.Hr.	No	Yes	AS
Shadyside Hospital	H.S.	24 mos.	34	July	$150 YR	No	No	Cert.
Western Pennsylvania Hosp.	H.S.	24 mos.	24	July	$250	No	No	Cert.
POTTSVILLE								
Pottsville Hosp. & Warne Clinic	H.S.	24 mos.	1	July	None	Yes	No	Cert.
READING								
Community General Hosp.	H.S.	24 mos.	12	July	590	Yes	No	Cert.
Reading Hospital	H.S.	24 mos.	12	Sept.	$25 Qtr.	Yes	No	Cert.
St. Joseph's Hospital	H.S.	24 mos.	14	July	$150	Yes	No	Cert.
ROCHESTER								
Medical Center of Beaver County, Inc.	H.S.	24 mos.	10	July	None	Yes	No	Cert.
SAYRE								
Robert Packer Hospital	H.S.	24 mos.	20	July	$200	No	No	Cert.
SCRANTON								
Community Medical Center	H.S.	24 mos.	6	July	None	Yes	No	Cert.
Moses Taylor Hospital	H.S.	24 mos.	10	Sept.	None	Yes	No	Cert.
Scranton State Gen. Hosp.	H.S.	24 mos.	8	July	None	Yes	No	Cert.
SEWICKLEY								
Sewickley Valley Hospital	H.S.	24 mos.	8	June	None	Yes	No	Cert.
SHARON								
Sharon General Hospital	H.S.	24 mos.	4	July	None	Yes	No	Cert.
SOMERSET								
Somerset Community Hosp.	H.S.	24 mos.	10	Sept.	None	Yes	No	Cert.
WASHINGTON								
Washington Hospital	H.S.	24 mos.	16	July	None	Yes	No	Cert.
WAYNESBURG								
Green County Memorial Hosp.	H.S.	24 mos.	4	Sept.	None	Yes	No	Cert.
WILKES-BARRE								
Mercy Hospital	H.S.	24 mos.	12	July	$250	No	No	Cert.
Wilkes-Barre General Hosp.	H.S.	24 mos.	18	July	None	No	No	Cert.
WILLIAMSPORT								
Williamsport Area Com. Col.	H.S.	27 mos.	25	Sept.	$800 Sem. NONRES	No	Yes	AAS

(Cont'd)

	Entrance Requirements[b]	Length of Program	Student Capacity	Classes Begin	Tuition	Stipend	Scholarship	Certificate or Degree Granted
Radiologic Technol. (Cont'd)								
YORK								
York Hospital	H.S.	24 mos.	10	Sept.	None	Yes	No	Cert.
Respiratory Therapist/ Res. Therapy Technician								
CHESTER								
Crozer-Chester Medical Ctr.	H.S.	24 mos.	20	Sept.	$208 Sem. Res., $624 NONRES	No	Yes	AS
LANCASTER								
St. Joseph's Hospital	H.S.	30 mos.	20	June	$600 Sem.	No	Yes	AS
PHILADELPHIA								
CC of Philadelphia	H.S.	32 mos.	30	Sept.	$450 YR	Yes	Yes	AAS
PITTSBURGH								
Indiana Univ. of Pa./ Western Pa. Hospital	H.S.	45 mos.	20	Sept.	$325 Sem. Res.	No	Yes	BS
Univ. of Pittsburgh Health Center	H.S.	24 mos.	24	Sept.	$15 Cr.	No	Yes	AS
SAYRE								
Robert Packer Hospital	H.S.	18 mos.	8	Sept.	-----	No	No	Cert.
Specialist in Blood Bank Technology								
PITTSBURGH								
Central Blood Bank of Pittsburgh	MT (ASCP) or Degree	12 mos.	2	Feb.	None	Yes	No	----
WASHINGTON								
Washington Hospital	MT (ASCP) or Degree	12 mos.	2	Jan.	None	Yes	No	----

Appendix F

Hospitals, by Bed Size and County, in Pennsylvania, 1975[a]

County	Bed Size								Number of Hospitals	Beds	Bassinets
	24 or Less	25-49	50-99	100-199	200-299	300-399	400-499	500 & Over			
Adams	-	-	-	1	-	-	-	-	1	112	20
Allegheny	3	-	4	5	12	3	2	6	35	9,725	742
Armstrong	-	-	-	-	1	-	-	-	1	230	20
Beaver	1	-	1	2	1	-	-	-	5	726	96
Bedford	-	-	-	1	-	-	-	-	1	116	12
Berks	-	-	1	-	1	1	-	1	4	1,206	112
Blair	-	-	2	-	1	-	1	-	4	807	94
Bradford	-	1	1	-	-	1	-	-	3	450	38
Bucks	1	-	1	5	-	1	-	-	8	1,190	115
Butler	-	-	1*	-	-	1	-	-	2	431	35
Cambria	-	-	-	1	1	1	-	1	4	1,238	92
Cameron	-	-	-	-	-	-	-	-	0	0	0
Carbon	-	-	1	1	-	-	-	-	2	218	16
Centre	-	-	1	2	-	-	-	-	3	373	38
Chester	1	2	3	2	1	-	-	-	9	872	93
Clarion	-	-	1	-	-	-	-	-	1	69	10
Clearfield	-	-	-	3	-	-	-	-	3	459	47
Clinton	-	1	-	1	-	-	-	-	2	221	18
Columbia	-	-	-	2	-	-	-	-	2	297	33
Crawford	-	-	1	2	-	-	-	-	3	432	37
Cumberland	-	-	2	-	1	-	1	-	4	779	68
Dauphin	2	-	-	1	1	-	-	2	6	1,960	180
Delaware	1	-	-	3	2	3	-	-	9	2,040	192
Elk	-	-	-	-	1	1	-	-	2	347	30
Erie	2	2	1	2	-	-	1	1	9	1,482	118
Fayette	-	-	-	2	1	-	-	-	3	577	76
Forest	-	-	-	-	-	-	-	-	0	0	0
Franklin	-	-	-	1	-	1	-	-	2	425	51
Fulton	-	1	-	-	-	-	-	-	1	40	6
Greene	-	-	-	1	-	-	-	-	1	146	15
Huntingdon	-	-	-	1	-	-	-	-	1	122	23
Indiana	-	-	-	-	1	-	-	-	1	200	27
Jefferson	-	-	2	-	-	-	-	-	2	157	19
Juniata	-	-	-	-	-	-	-	-	0	0	0
Lackawanna	-	1	3	3	2	1	-	-	10	1,537	112
Lancaster	-	-	1	2	-	1	-	1	5	1,245	154
Lawrence	-	-	1	-	2	-	-	-	3	554	55
Lebanon	1	-	-	1	1	-	-	-	3	314	37
Lehigh	1	-	1	2	1	1	-	1	7	1,963	113
Luzerne	1	-	-	5	2	1	-	-	9	1,525	150
Lycoming	-	-	1	1	1	-	1	-	4	897	78
McKean	-	1	1	1	-	-	-	-	3	270	37
Mercer	-	-	2	1	1	1	-	-	5	799	91
Mifflin	-	-	-	-	1	-	-	-	1	234	36
Monroe	-	-	-	-	1	-	-	-	1	253	30
Montgomery	-	-	2	3	4	2	2	-	13	3,282	285
Montour	-	-	-	-	-	-	1	-	1	417	15
Northampton	-	-	-	-	-	1	-	-	1	315	33
Northumberland	-	-	-	2	-	-	-	-	2	260	33
Perry	-	-	-	-	-	-	-	-	0	0	0
Philadelphia	2	2	8	9	11	8	1	6	47	12,580	905
Pike	-	-	-	-	-	-	-	-	0	0	0
Potter	-	-	-	1	-	-	-	-	1	141	12
Schuylkill	-	-	1	1	3	-	-	-	5	922	126
Snyder	-	-	-	-	-	-	-	-	0	0	0
Somerset	-	1	-	2	-	-	-	-	3	328	40
Sullivan	-	-	-	-	-	-	-	-	0	0	0
Susquehanna	-	1	1	-	-	-	-	-	2	129	18
Tioga	-	-	-	1	-	-	-	-	1	123	15
Union	-	-	-	1	-	-	-	-	1	136	20
Venango	-	-	-	1	1	-	-	-	2	386	32
Warren	1	-	-	1	-	-	-	-	2	194	24
Washington	-	-	-	2	1	-	-	1	4	709	78
Wayne	-	-	-	1	-	-	-	-	1	135	15
Westmoreland	2	-	-	2	2	1	1	-	8	1,579	146
Wyoming	-	-	1	-	-	-	-	-	1	54	8
York	-	-	-	1	1	-	-	1	3	906	106
TOTAL	19	13	46	83	60	30	11	21	283	59,634	5,277

[a] General Hospital Directory, The Division of Licensure, Bureau of Comprehensive Services, Pennsylvania Department of Health, Harrisburg, Pa. January 1975.

*Includes Valencia Unit of St. John's Hospital, Pittsburgh, Pa.

Appendix C

Estimated Number of Employes in Pennsylvania Hospitals by Bed Size and Selected Occupations[a]

Number of Usable Survey Forms	3		11		14		33		20		9		5		19		114	
Number of Beds	6-24		25-49		50-99		100-199		200-299		300-399		400-499		500 +		Total	
Service and Occupation[b]	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time
DENTAL SERVICES																		
Dental Assistants	0	0	8	1	0	4	5	3	12	0	0	0	27	3	78	3	130	14
Dental Hygienists*	0	0	0	0	0	4	0	5	3	0	3	0	10	0	54	0	70	9
Dental Laboratory Technicians	0	0	1	0	0	0	5	0	0	0	0	0	[illegible]	0	30	0	39	0
CLINICAL LABORATORY SERVICES																		
Certified Laboratory Assistants	0	0	4	1	25	4	138	16	319	20	78	24	122	14	132	15	818	94
Clinical Laboratory Scientists	0	0	1	0	0	0	21	3	64	9	39	3	0	0	33	0	158	15
Clinical Laboratory Technologists	0	0	18	4	7	0	70	47	142	3	141	21	37	3	267	5	682	84
Cytotechnologists*	0	0	0	0	0	0	13	3	29	9	45	9	7	0	12	0	106	21
Cytotechnologists, Other	0	0	0	0	0	0	11	3	12	3	26	3	5	0	12	0	66	9
Histologic Technicians*	0	0	3	0	0	4	18	0	55	6	36	0	14	3	18	0	144	13
Histologic Technicians, Other	0	0	0	0	4	0	44	10	38	3	24	3	3	3	27	3	140	22
Medical Laboratory Technicians*	0	0	5	0	44	4	177	29	368	124	120	105	177	48	168	0	1,059	310
Medical Technologists*	3	0	4	1	47	7	141	23	229	26	279	45	41	7	195	54	939	163
Medical Technologists, Other	0	0	0	0	47	7	73	23	124	49	18	21	3	3	81	18	346	121
DIETARY SERVICES																		
Dietitians*	0	3	0	10	22	22	81	16	87	6	45	6	51	3	183	21	469	87
Dietitian Assistant	0	3	7	10	33	0	42	13	116	3	75	0	61	0	33	0	367	29
MEDICAL RECORD SERVICES																		
Medical Librarians*	0	0	0	0	7	4	18	0	20	9	15	6	10	3	18	0	88	22
Medical Librarians, Other	0	0	1	1	47	4	8	0	6	0	3	0	10	0	21	0	96	5
Medical Record Administrators	0	0	0	1	11	4	18	0	32	0	21	3	10	0	18	0	110	8
Medical Record Librarians*	0	0	1	0	15	0	16	0	6	0	15	0	7	0	18	0	78	0
Medical Record Librarians, Other	3	0	5	1	4	0	21	0	20	3	3	0	7	0	6	0	69	4
Medical Record Technicians*	0	0	5	0	4	7	26	3	61	3	18	3	3	0	9	0	126	16
Medical Record Technicians, Other	0	0	4	3	15	4	52	10	110	9	108	15	7	0	33	6	329	47
Medical Record Clerks	3	0	4	0	44	15	258	34	334	15	132	36	88	10	351	27	1,214	137
NURSING SERVICES																		
Nurses, Registered	33	43	105	79	903	681	4,476	2,341	5,962	2,103	3,453	1,593	2,278	646	7,260	1,449	24,470	8,935
Nurses, Licensed, Practical or Vocational	7	7	78	30	571	149	1,754	410	2,598	368	1,893	288	1,493	1,972	2,778	573	11,172	3,797
Nursing Aides	10	10	117	57	885	240	3,015	634	3,103	342	2,004	273	1,227	177	12,531	354	22,892	2,087
Surgical Technicians	0	0	4	0	36	4	120	5	189	9	99	6	163	7	168	0	779	31
PHARMACY																		
Pharmacists, Licensed	0	3	4	7	11	29	107	34	276	58	90	33	61	3	234	33	783	200
Pharmacy Assistants	0	0	1	5	0	7	26	5	44	3	6	3	34	0	48	6	159	29
Pharmacy Aides	0	0	1	7	7	7	60	13	113	15	54	9	7	0	69	9	311	60

(Cont'd)

[a] Survey of Hospital Employes in Health Related Occupations in Pennsylvania, Pennsylvania Department of Education, Bureau of Information Systems, Harrisburg, Pa., 1974.

[b] The technique used to estimate the number of employes can be found in a footnote at the end of Table 10 in the body of the text.

*Includes only certified, licensed or registered personnel.

Service and Occupation	Number of Usable Survey Forms: 3		11		14		33		20		9		5		19		114	
	Number of Beds: 6-24		25-49		50-99		100-199		200-299		300-399		400-499		500 +		Total	
	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time
RADIOLOGIC TECHNOLOGY																		
Nuclear Medicine Technicians	0	0	0	0	4	0	16	0	41	0	30	0	7	0	51	0	149	0
Nuclear Medicine Technologists*	0	0	0	0	0	0	3	0	32	0	9	0	27	0	3	0	74	0
Radiation Therapy Technologists*	0	0	3	4	0	0	0	0	17	0	51	3	10	0	15	0	96	7
Radiation Therapy Technicians*	0	0	0	0	18	0	89	10	75	12	6	0	10	0	51	0	249	22
Radiation Therapy Technologists, Other	0	0	0	0	0	0	5	3	9	3	3	0	0	0	0	0	17	6
Radiation Therapy Assistants	0	0	3	0	0	0	0	0	3	0	0	0	3	0	0	0	9	0
Radiologic Technologists	3	0	4	4	73	33	303	73	394	52	282	12	153	0	312	6	1,524	180
Radiologic Assistants	0	3	0	0	4	0	34	3	20	3	39	12	3	0	18	0	118	21
X-Ray Assistants	0	0	4	1	11	11	39	5	75	0	9	0	0	0	13	12	153	29
THERAPEUTIC SERVICES																		
Inhalation Therapists*	0	0	3	0	15	4	34	0	58	0	48	0	34	3	108	0	300	7
Inhalation Therapists, Other	0	0	3	1	18	7	91	8	93	3	63	0	14	0	120	3	402	22
Inhalation Therapy Aides	0	0	0	0	0	0	42	16	81	12	3	0	65	0	24	0	215	28
Occupational Therapists*	0	0	3	0	25	0	8	0	6	3	9	6	7	7	87	9	145	22
Occupational Therapy Assistants*	0	0	1	0	0	0	8	0	0	0	3	0	0	0	63	0	75	0
Occupational Therapy Aides	0	0	10	0	18	0	8	3	0	0	0	0	7	0	240	3	283	6
Physical Therapists, Licensed	0	0	14	0	95	15	91	16	87	38	54	9	41	0	120	9	502	87
Physical Therapists, Other	0	0	0	0	4	4	18	0	41	3	0	0	0	0	6	0	69	7
Physical Therapy Assistants/Aides	0	0	8	0	40	4	115	16	160	6	69	3	37	0	135	3	564	32
Recreation Therapists	3	0	1	0	7	0	8	0	20	0	3	3	20	0	291	0	353	3
Recreation Therapy Aides	0	0	0	1	0	0	3	0	6	0	0	0	27	0	192	0	228	1
Respiratory Therapists*	0	0	0	0	0	0	18	0	52	0	27	0	20	0	0	0	117	0
Respiratory Therapy Technicians*	0	0	0	0	0	0	21	[illegible]	67	0	105	9	24	3	24	3	241	18
Social Workers, Masters/Baccalaureate Degree	3	7	3	3	36	15	107	8	171	9	75	3	139	7	654	15	1,188	67
Social Worker Assistants/Aides	0	3	0	1	4	4	18	0	38	0	18	3	54	0	51	0	183	11
Speech Pathologists and Audiologists*	0	0	0	1	4	15	18	13	20	6	6	0	3	0	24	0	75	35
Speech Pathologists and Audiologists, Other	0	0	3	1	4	0	8	0	6	3	0	3	0	0	18	0	39	7
OTHER HEALTH PROFESSIONAL AND TECHNICAL SERVICES NOT ELSEWHERE COUNTED																		
Assistant to Primary Care Physician/Medical Corpsman	3	0	0	0	0	0	0	0	6	0	0	0	7	0	3	0	19	0
Electrocardiographic Technicians	0	0	0	5	36	11	104	31	154	23	114	9	65	7	123	12	596	98
Electroencephalograph Technicians	0	0	0	0	0	0	13	18	46	6	27	3	17	0	45	0	148	27
Hospital Administrators	10	0	15	0	51	0	86	0	61	6	36	0	14	3	72	3	345	12

(Cont'd)

*Includes only certified, licensed or registered personnel.

Service and Occupation	Number of Usable Survey Forms: 3		11		14		33		20		9		5		19		114	
	Number of Beds: 6-24		25-49		50-99		100-199		200-299		300-399		400-499		500 +		Total	
	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time
OTHER HEALTH PROFESSIONAL AND TECHNICAL SERVICES NOT ELSEWHERE COUNTED (Cont'd)																		
Hospital Administrator Assistants	3	0	3	1	18	4	60	3	64	0	63	0	51	0	123	0	385	8
Medical Assistants*	0	0	0	0	4	0	0	0	0	0	0	0	0	0	3	3	7	3
Medical Assistants in Pediatrics-Certified	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Medical Assistants, Other	0	0	0	0	0	0	10	0	0	0	0	0	0	0	33	0	43	0
Medical Secretaries	3	7	7	0	44	18	209	18	209	20	339	12	238	24	366	3	1,415	102
Obstetrical Aides	0	0	0	0	4	4	0	0	17	0	0	0	0	0	0	0	21	4
Operating Room Technicians*	0	0	3	1	25	4	70	5	113	9	144	3	54	7	147	0	556	29
Orthopaedic Physician's Assistant	0	0	0	0	0	0	0	0	9	0	6	0	7	0	30	0	52	0
Pediatric Aides	0	0	0	0	0	0	0	0	12	0	0	0	0	0	9	0	21	0
Specialists in Blood Bank*	0	0	0	0	0	0	8	5	29	15	18	0	20	7	51	0	126	27
Urologic Physician's Assistant	0	0	0	0	0	4	0	0	0	0	3	0	0	0	12	0	15	4
Ward Clerks	3	3	8	1	40	18	397	78	885	99	693	75	333	41	906	0	3,265	315
GRAND TOTAL	90	92	480	243	3,391	1,386	12,876	4,018	17,649	3,526	11,198	2,676	7,477	3,014	29,430	2,661	82,591	17,616

*Includes only certified, licensed or registered personnel.

Appendix H

Licensed and/or Approved Nursing Homes in Pennsylvania, 1974

County	Type Facility[a]	Type Control & Beds				
		Profit	Nonprofit	County	State	Total
Adams	Skilled	50				50
	Comb. Skilled & ICF		253	78		331
	ICF	56	47			103
Allegheny	Skilled	1,453	569			2,022
	Comb. Skilled & ICF		716		104	820
	ICF	173	482			655
Armstrong	Skilled					--
	Comb. Skilled & ICF			98		98
	ICF	46				46
Beaver	Skilled	206				206
	Comb. Skilled & ICF			561		561
	ICF	19				19
Bedford	Skilled	72				72
	Comb. Skilled & ICF			48		48
	ICF	58				58
Berks	Skilled	440	205			645
	Comb. Skilled & ICF			754	871	1,625
	ICF		102			102
Blair	Skilled	112	368			480
	Comb. Skilled & ICF		245	197		442
	ICF	67			88	155
Bradford	Skilled	105				105
	Comb. Skilled & ICF					--
	ICF					--
Bucks	Skilled	1,266	453	240		1,959
	Comb. Skilled & ICF					--
	ICF	29	63			92
Butler	Skilled	292	54			346
	Comb. Skilled & ICF		431	372		803
	ICF	22				22
Cambria	Skilled		139			139
	Comb. Skilled & ICF			391	1,494	1,885
	ICF		125			125
Cameron	Skilled		30			30
	Comb. Skilled & ICF					--
	ICF					--

[a]"Directories of Licensed and/or Approved Nursing Homes in Pennsylvania," Pennsylvania Department of Public Welfare, Harrisburg, Pa., 1974.

*Abbreviations:

Comb. Skilled: Combination Skilled
ICF: Intermediate Care Facility

County	Type Facility	Type Control & Beds				
		Profit	Nonprofit	County	State	Total
Carbon	Skilled	16	70			86
	Comb. Skilled & ICF			200		200
	ICF	19				19
Centre	Skilled	91	130			221
	Comb. Skilled & ICF			225		225
	ICF					--
Chester	Skilled	509	527	343		1,379
	Comb. Skilled & ICF		30	1,223		1,253
	ICF		65			65
Clarion	Skilled	52				52
	Comb. Skilled & ICF					--
	ICF			28		28
Clearfield	Skilled	119				119
	Comb. Skilled & ICF		100			100
	ICF	99	11			110
Clinton	Skilled	38				38
	Comb. Skilled & ICF			120		120
	ICF					--
Columbia	Skilled	323				323
	Comb. Skilled & ICF			15		15
	ICF	20				20
Crawford	Skilled	305				305
	Comb. Skilled & ICF		321	195		516
	ICF		121			121
Cumberland	Skilled	319	354			673
	Comb. Skilled & ICF		276	317		593
	ICF		73			73
Dauphin	Skilled	221	374			595
	Comb. Skilled & ICF		178	475		653
	ICF	59	23			82
Delaware	Skilled	1,723	375	800		2,898
	Comb. Skilled & ICF		75			75
	ICF	60	157			217
Elk	Skilled		84			84
	Comb. Skilled & ICF					--
	ICF			42		42

(Cont'd)

Appendix H (Cont'd)

County	Type Facility	Type Control & Beds				
		Profit	Nonprofit	County	State	Total
Erie	Skilled	572	236	80		888
	Comb. Skilled & ICF		237	455		692
	ICF	33	84			117
Fayette	Skilled	333				333
	Comb. Skilled & ICF			98		98
	ICF					--
Forest	Skilled					--
	Comb. Skilled & ICF					--
	ICF					--
Franklin	Skilled	102				102
	Comb. Skilled & ICF		1,237	160		1,397
	ICF		72			72
Fulton	Skilled					--
	Comb. Skilled & ICF					--
	ICF	33				33
Greene	Skilled		28			28
	Comb. Skilled & ICF			111		111
	ICF					--
Huntingdon	Skilled					--
	Comb. Skilled & ICF			145		145
	ICF					--
Indiana	Skilled	124	61			185
	Comb. Skilled & ICF			133		133
	ICF					--
Jefferson	Skilled	86				86
	Comb. Skilled & ICF			125		125
	ICF		60			60
Juniata	Skilled	125				125
	Comb. Skilled & ICF					--
	ICF					--
Lackawanna	Skilled	581	331			912
	Comb. Skilled & ICF			394		394
	ICF	114	52			166
Lancaster	Skilled	1,031	1,300			2,331
	Comb. Skilled & ICF		1,206	330		1,536
	ICF	9	60			69
Lawrence	Skilled	67	107			174
	Comb. Skilled & ICF			131		131
	ICF		130			130

County	Type Facility	Type Control & Beds				
		Profit	Nonprofit	County	State	Total
Lebanon	Skilled	66	165			231
	Comb. Skilled & ICF		622	240		862
	ICF		15			15
Lehigh	Skilled	478	272			750
	Comb. Skilled & ICF		433	760		1,193
	ICF	55				55
Luzerne	Skilled	664	269	286		1,219
	Comb. Skilled & ICF				890	890
	ICF					--
Lycoming	Skilled	272	60			332
	Comb. Skilled & ICF		88	240		328
	ICF	97	60			157
McKean	Skilled		37			37
	Comb. Skilled & ICF			163		163
	ICF	23	68			91
Mercer	Skilled	259	228			487
	Comb. Skilled & ICF		97	235		332
	ICF		49			49
Mifflin	Skilled		62			62
	Comb. Skilled & ICF		62			62
	ICF			56		56
Monroe	Skilled	172				172
	Comb. Skilled & ICF			71		71
	ICF		32			32
Montgomery	Skilled	1,596	846			2,442
	Comb. Skilled & ICF		591	593		1,184
	ICF	216	56			272
Montour	Skilled	150	98			248
	Comb. Skilled & ICF			27		27
	ICF	50				50
Northampton	Skilled	211	80			291
	Comb. Skilled & ICF			559		559
	ICF	64				64
Northumberland	Skilled	190				190
	Comb. Skilled & ICF			200		200
	ICF					--
Perry	Skilled	67	65			132
	Comb. Skilled & ICF			37		37
	ICF	25	28			53

(Cont'd)

Appendix H (Cont'd)

County	Type Facility	Type Control & Beds				
		Profit	Nonprofit	County	State	Total
Philadelphia	Skilled	2,985	3,080	734		6,799
	Comb. Skilled & ICF		1,567			1,567
	ICF	88	525			613
Pike	Skilled	30				30
	Comb. Skilled & ICF					--
	ICF	28				28
Potter	Skilled	26	65			91
	Comb. Skilled & ICF					--
	ICF					--
Schuylkill	Skilled	239	96		18	353
	Comb. Skilled & ICF			439		439
	ICF					--
Snyder	Skilled	204				204
	Comb. Skilled & ICF				1,571	1,571
	ICF	20				20
Somerset	Skilled	49				49
	Comb. Skilled & ICF		263			263
	ICF			174	127	301
Sullivan	Skilled	48				48
	Comb. Skilled & ICF					--
	ICF					--
Susquehanna	Skilled	63		45		108
	Comb. Skilled & ICF			27		27
	ICF					--
Tioga	Skilled	25				25
	Comb. Skilled & ICF			78		78
	ICF	24				24
Union	Skilled	108	56			164
	Comb. Skilled & ICF		207		562	769
	ICF	20				20
Venango	Skilled	114			3,172	3,286
	Comb. Skilled & ICF			178		178
	ICF					--
Warren	Skilled	110				110
	Comb. Skilled & ICF		179			179
	ICF	79	33			112
Washington	Skilled	239	167			406
	Comb. Skilled & ICF				505	505
	ICF	38			150	188
Wayne	Skilled					--
	Comb. Skilled & ICF		56			56
	ICF	78				78
Westmoreland	Skilled	495	62			557
	Comb. Skilled & ICF		198	369		567
	ICF	12	31			43
Wyoming	Skilled					--
	Comb. Skilled & ICF					--
	ICF	22				22
York	Skilled	490	194			684
	Comb. Skilled & ICF		172	547		719
	ICF					--

SKILLED	37,498
COMBINATION	27,951
ICF	5,144
TOTAL BEDS	70,593

Appendix I

Estimated Number of Employes in Pennsylvania Nursing Homes by Bed Size and Select Occupations[a]

No. of Usable Survey Forms	27		76		73		78		18		4		6		9		291	
Nursing Home Bed Size	6-24		25-49		50-99		100-199		200-299		300-399		400-499		500 +		Total	
Service and Occupation	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time	Full-Time	Part-Time
Administrators	83	16	160	6	193	6	159	4	31	0	7	0	13	0	24	0	670	32
Assistant Administrators	19	6	58	50	107	26	103	10	23	0	5	0	15	0	22	0	352	92
Nurses, Registered	121	165	916	443	590	763	999	787	403	161	63	67	241	115	436	62	3,769	2,563
Nurses, Licensed, Practical or Vocational	223	153	654	229	651	282	1,131	323	370	85	75	46	184	15	398	10	3,686	1,143
Nurses Aides	620	337	2,350	600	3,542	982	5,311	1,339	1,544	354	434	142	1,336	45	3,634	70	18,771	3,869
Dietitians	10	51	24	106	26	167	41	93	23	16	4	4	2	7	18	6	148	450
Occupational Therapists, Registered	0	6	11	19	9	32	21	33	8	2	0	0	0	0	22	0	71	92
Occupational Therapist Assistants/Aides	0	3	58	15	17	55	72	52	26	0	4	2	13	0	76	4	266	131
Physical Therapists, Licensed	0	32	32	67	14	124	39	105	13	13	4	4	7	3	14	6	123	354
Physical Therapists, Assistants	3	16	26	15	32	32	122	23	48	0	7	4	32	0	58	0	328	90
Recreation Therapists	3	48	39	48	37	92	80	54	26	5	5	0	100	0	42	2	332	249
Medical Record Librarians, Registered	0	16	13	45	17	84	10	70	3	6	0	2	2	3	0	0	45	226
Other Medical Record Librarians/Technicians	3	3	28	26	14	17	52	29	18	6	5	0	13	0	16	0	149	81
Social Workers	6	35	32	60	23	84	35	68	14	5	4	2	20	0	100	2	234	256
Speech Therapists	0	6	4	17	0	29	4	39	29	8	0	0	5	2	32	0	74	101
Other Professional and Technical Employes, NEC*	0	6	143	65	72	32	33	31	158	10	7	2	33	17	68	4	514	167
GRAND TOTAL	1,091	899	4,548	1,811	5,344	2,807	8,212	3,060	2,737	671	624	275	2,016	207	4,960	166	29,532	9,896

[a]"Survey of Nursing Home Employes by Select Health and Health-Related Categories in Pennsylvania," Pennsylvania Department of Education, Bureau of Information Systems, Harrisburg, Pa., 1974.

[b]The technique used to estimate the number of employes in each of the occupational categories is described in a footnote appearing in Table 15 in the body of the text.

*Not elsewhere counted

Appendix J

Registered Nurses, Ratio of Employment and Ratio Rank by County

County	Estimated Population 1972[a]	Total Number Nurses[b]	Estimated Employed[b]		
			Number	Nurse Population Ratio Per 100,000	Ratio Rank 67 Counties*
Adams	60,100	277	193	321	51
Allegheny	1,578,400	13,038	8,941	567	17
Armstrong	76,600	360	232	303	52
Beaver	211,100	1,272	835	396	39
Bedford	43,000	190	124	288	57
Berks	300,500	2,422	1,525	507	23
Blair	137,200	1,239	851	620	9
Bradford	59,100	509	372	629	6
Bucks	435,600	2,511	1,451	333	49
Butler	132,700	1,025	624	470	29
Cambria	189,300	1,642	1,144	604	10
Cameron	7,300	25	17	233	63
Carbon	50,900	373	226	444	34
Centre	103,000	754	471	457	30
Chester	284,000	2,387	1,375	484	26
Clarion	40,100	147	97	242	62
Clearfield	75,900	550	363	478	28
Clinton	38,500	216	150	390	40
Columbia	56,900	469	320	562	18
Crawford	84,300	610	434	514	22
Cumberland	164,400	1,246	731	445	33
Dauphin	225,500	2,314	1,570	696	2
Delaware	603,700	3,741	2,499	414	38
Elk	38,900	316	232	596	13
Erie	270,800	2,000	1,301	480	27
Fayette	158,100	820	540	342	47
Forest	5,100	18	6	118	66
Franklin	102,300	565	375	367	43
Fulton	11,200	46	33	294	54
Greene	37,900	149	110	290	56

(Cont'd)

[a] Current Population Reports: Federal-State Cooperative Program for Population Estimates, Series P-26, No. 93 (Pennsylvania), U.S. Department of Commerce, Washington, D.C., 1974.

[b] Ruth Morgan and Margaret Balog, Pennsylvania Nurses: 1972 Inventory of Registered Nurses, Pennsylvania Department of Health, Harrisburg, Pa., 1975.

*Counties are ranked according to the number of registered nurses per 100,000 population. "Best" county ranks Number 1 (Montour), "Worst" county ranks Number 67 (Sullivan).

Appendix J (Cont'd)

County	Estimated Population 1972[1]	Total Number Nurses[2]	Estimated Employed[b]		
			Number	Nurse Population Ratio Per 100,000	Ratio Rank 67 Counties*
Huntingdon	40,600	218	144	355	46
Indiana	82,100	452	268	326	50
Jefferson	44,500	244	161	362	44
Juniata	17,700	59	30	169	65
Lackawanna	236,300	2,192	1,536	650	3
Lancaster	331,700	2,379	1,504	453	32
Lawrence	107,300	934	648	604	11
Lebanon	102,900	614	445	432	35
Lehigh	258,000	2,505	1,673	648	4
Luzerne	347,900	3,456	2,251	647	5
Lycoming	114,500	979	656	573	15
McKean	52,800	411	280	530	20
Mercer	130,300	985	723	555	19
Mifflin	45,300	368	270	596	12
Monroe	47,700	426	297	623	7
Montgomery	627,500	5,566	3,612	576	14
Montour	17,400	450	354	2,034	1
Northampton	220,200	1,524	826	375	42
Northumberland	101,100	547	290	287	58
Perry	30,800	103	55	179	64
Philadelphia	1,908,200	10,120	8,025	421	37
Pike	12,700	58	34	268	60
Potter	17,200	72	50	290	55
Schuylkill	162,800	1,317	839	515	21
Snyder	31,100	126	92	295	53
Somerset	78,800	450	297	377	41
Sullivan	6,100	18	7	114	67
Susquehanna	36,300	162	94	259	61
Tioga	41,400	191	115	278	59
Union	29,800	207	148	497	25
Venango	63,900	573	363	568	16
Warren	49,000	418	304	620	8
Washington	215,700	1,343	922	427	36
Wayne	31,500	241	157	498	24
Westmoreland	381,000	2,781	1,735	455	31
Wyoming	20,800	124	71	341	48
York	280,000	1,588	1,009	360	45
County Not Specified		10,982	1,438	120	Not Ranked
Pennsylvania Totals	11,905,000	96,414	58,865	494	

Appendix K

Basic Professional Preparation and Highest Degree Held for Full-Time Registered Nurses in Pennsylvania, 1972[a]

	Basic Preparation*				Highest Degree Held*							
County	Total	Diploma	AA/AS Nursing	BA/BS Nursing	Less Than BA/BS	BA/BS Nursing	BA/BS Other	MA/MS Nursing	MA/MS Other	Doctorate	Other	Unknown
Adams	111	102	1	8	74	8	2	1	2	0	0	24
Allegheny	6,182	5,190	159	833	4,298	730	189	204	186	23	0	552
Armstrong	142	132	0	10	113	9	5	1	2	0	0	12
Beaver	582	525	4	53	436	49	31	6	5	0	0	55
Bedford	74	68	2	4	54	5	2	0	0	0	0	13
Berks	1,025	957	4	64	798	60	44	12	16	2	0	93
Blair	584	540	8	36	451	42	27	7	2	0	0	55
Bradford	240	223	1	16	181	12	9	4	5	0	0	29
Bucks	763	639	21	103	495	86	62	9	22	0	0	89
Butler	405	357	6	42	295	35	21	7	6	0	0	41
Cambria	724	661	10	53	565	40	22	14	13	0	0	70
Cameron	11	10	0	1	9	0	1	1	0	0	0	0
Carbon	141	137	0	4	110	5	4	0	0	0	0	22
Centre	290	259	6	25	199	27	12	9	3	4	0	36
Chester	894	771	14	109	591	105	67	5	18	0	0	108
Clarion	50	44	1	5	35	5	0	0	2	0	0	8
Clearfield	237	214	1	22	180	16	10	1	2	0	0	28
Clinton	93	92	1	0	69	3	3	0	0	0	0	18
Columbia	175	161	0	14	129	14	7	1	1	0	0	23
Crawford	245	220	1	24	179	23	7	4	3	0	0	29
Cumberland	428	383	5	40	299	48	19	5	5	0	0	52
Dauphin	1,078	945	19	114	766	108	42	19	19	3	0	121
Delaware	1,497	1,238	47	212	976	188	79	50	30	4	0	170
Elk	134	125	0	9	101	10	5	0	1	0	0	17
Erie	785	664	10	111	541	108	29	20	12	1	0	74
Fayette	400	363	5	32	304	28	20	5	4	0	0	39
Forest	3	2	0	1	2	1	0	0	0	0	0	0
Franklin	253	231	3	19	196	16	6	1	4	1	0	29
Fulton	18	16	0	2	12	2	1	0	0	0	0	3
Greene	84	78	0	6	61	8	4	1	1	0	0	9
Huntingdon	104	97	1	6	76	6	2	0	0	0	0	20
Indiana	202	174	2	26	129	22	17	3	6	1	0	24
Jefferson	99	90	1	8	71	8	6	0	0	0	0	14
Juniata	18	16	0	2	15	1	1	0	0	0	0	1
Lackawanna	930	842	11	77	661	92	23	14	15	0	0	125

(Cont'd)

[a]Ruth Morgan and Margaret M. Balog, Pennsylvania's Nurses: 1972 Inventory of Registered Nurses, Division of Public Health Nursing, Pennsylvania Department of Health, Harrisburg, Pa., 1975.

*Degree abbreviations:
AA--Associate Arts BA--Bachelor of Arts MA--Master of Arts
AS--Associate Science BS--Bachelor of Science MS--Master of Science

Appendix K (Cont'd)

County	Basic Preparation				Highest Degree Held							
	Total	Diploma	AA/AS Nursing	BA/BS Nursing	Less Than BA/BS	BA/BS Nursing	BA/BS Other	MA/MS Nursing	MA/MS Other	Doctorate	Other	Unknown
Lancaster	904	805	10	89	625	82	53	12	13	0	0	119
Lawrence	351	326	4	21	266	22	17	2	7	0	0	37
Lebanon	294	252	4	38	207	39	10	2	4	0	0	32
Lehigh	1,075	987	11	77	804	82	40	13	17	1	0	118
Luzerne	1,469	1,333	7	129	1,066	189	21	22	28	0	0	143
Lycoming	407	379	2	26	299	31	11	7	2	0	0	57
McKean	154	145	1	8	124	8	0	1	0	0	0	21
Mercer	423	398	6	19	327	17	19	2	5	1	0	52
Mifflin	179	172	2	5	147	12	2	0	0	0	0	18
Monroe	161	144	3	14	117	11	9	0	1	1	0	22
Montgomery	2,004	1,703	46	255	1,372	230	107	43	37	1	0	214
Montour	252	234	2	16	201	17	6	3	3	0	0	22
Northampton	553	492	9	52	390	37	32	5	18	0	0	71
Northumberland	185	172	2	11	143	10	4	2	0	0	0	26
Perry	31	26	0	5	19	4	2	0	3	0	0	3
Philadelphia	6,100	5,040	170	890	3,953	888	295	208	128	11	0	617
Pike	16	15	0	1	8	2	2	1	0	0	0	3
Potter	34	30	1	3	27	2	1	0	0	0	0	4
Schuylkill	594	563	2	29	456	33	15	3	4	0	0	83
Snyder	54	46	0	8	37	7	3	0	0	0	0	7
Somerset	186	174	1	11	135	12	6	0	3	0	0	30
Sullivan	6	6	0	0	3	1	0	0	0	0	0	2
Susquehanna	47	37	2	8	34	4	3	1	0	0	0	5
Tioga	74	64	5	5	56	6	4	0	1	0	0	7
Union	79	76	0	3	63	2	6	0	0	0	0	8
Venango	211	200	2	9	153	12	8	6	3	0	0	29
Warren	201	181	8	12	169	16	4	1	3	1	0	7
Washington	617	553	7	57	450	33	48	5	17	0	0	64
Wayne	87	77	1	9	65	4	4	2	0	0	0	12
Westmoreland	1,084	987	7	90	806	87	46	13	23	0	0	109
Wyoming	41	37	1	3	34	4	2	0	0	0	0	1
York	661	592	8	61	490	54	27	11	6	0	0	73
County Not Specified	903	767	23	113	522	109	21	27	19	0	0	207
TOTAL	38,438	33,579	691	4,168	27,029	3,987	1,607	796	728	55	0	4,236

Appendix L

Basic Professional Preparation and Highest Degree Held for Part-Time Registered Nurses in Pennsylvania, 1972[a]

County	Basic Preparation*				Highest Degree Held*							
	Total	Diploma	AA/AS Nursing	BA/BS Nursing	Less Than BA/BS	BA/BS Nursing	BA/BS Other	MA/MS Nursing	MA/MS Other	Doctorate	Other	Unknown
Adams	82	74	0	8	61	6	3	0	0	0	0	12
Allegheny	2,759	2,555	40	164	2,247	185	27	18	20	1	0	261
Armstrong	90	86	0	4	74	5	1	1	1	0	0	8
Beaver	253	241	2	10	210	14	3	0	0	0	0	26
Bedford	50	48	1	1	37	1	0	0	0	0	0	12
Berks	500	474	2	24	411	26	7	2	5	0	0	49
Blair	267	261	4	2	230	3	2	0	1	0	0	31
Bradford	132	130	0	2	109	0	3	0	0	0	0	20
Bucks	688	650	9	29	549	40	9	3	1	0	0	86
Butler	219	211	2	6	180	12	2	0	0	0	0	25
Cambria	420	407	4	9	367	10	3	0	2	0	0	38
Cameron	6	6	0	0	5	0	0	0	0	0	0	1
Carbon	85	84	1	0	64	1	1	0	0	0	0	19
Centre	181	170	2	9	146	13	3	0	0	0	0	19
Chester	481	439	5	37	350	45	19	2	2	0	0	63
Clarion	47	46	1	0	43	0	0	0	0	0	0	4
Clearfield	126	124	1	1	100	2	1	0	1	0	0	22
Clinton	57	54	0	3	37	4	0	0	0	0	0	16
Columbia	145	141	0	4	112	4	6	1	0	0	0	22
Crawford	189	184	1	4	159	7	1	0	0	0	0	22
Cumberland	303	294	2	7	256	12	1	0	2	0	0	32
Dauphin	492	473	4	15	411	19	4	2	3	0	0	53
Delaware	1,002	934	17	51	779	62	22	4	2	0	0	133
Elk	98	90	1	7	83	9	0	0	0	0	0	6
Erie	516	480	9	27	412	29	8	2	2	0	0	63
Fayette	140	134	1	5	111	4	4	1	0	0	0	20
Forest	3	3	0	0	3	0	0	0	0	0	0	0
Franklin	122	118	0	4	97	5	0	0	2	0	0	18
Fulton	15	12	2	1	12	1	0	0	0	0	0	2
Greene	26	26	0	0	19	3	0	0	0	0	0	4
Huntingdon	40	39	0	1	30	0	1	0	0	0	0	9
Indiana	66	64	0	2	50	2	1	1	0	0	0	12
Jefferson	62	58	0	4	47	3	1	0	1	0	0	10
Juniata	12	12	0	0	9	0	0	0	0	0	0	3
Lackawanna	606	585	8	13	516	15	6	0	1	0	0	68

(Cont'd)

[a]Ruth Morgan and Margaret M. Balog, Pennsylvania's Nurses: 1972 Inventory of Registered Nurses, Division of Public Health Nursing, Pennsylvania Department of Health, Harrisburg, Pa., 1975.

*Degree abbreviations: AA--Associate Arts BA--Bachelor of Arts MA--Master of Arts
AS--Associate Science BS--Bachelor of Science MS--Master of Science

Appendix L (Cont'd)

County	Basic Preparation				Highest Degree Held							
	Total	Diploma	AA/AS Nursing	BA/BS Nursing	Less Than BA/BS	BA/BS Nursing	BA/BS Other	MA/MS Nursing	MA/MS Other	Doctorate	Other	Unknown
Lancaster	600	565	3	32	461	44	7	0	3	1	0	84
Lawrence	297	287	0	10	244	18	10	0	2	0	0	23
Lebanon	151	146	2	3	120	6	1	0	0	0	0	24
Lehigh	598	576	7	15	473	27	7	11	8	1	0	71
Luzerne	782	748	3	31	636	42	8	0	1	0	0	95
Lycoming	249	243	1	5	202	7	5	0	0	0	0	35
McKean	126	125	0	1	102	3	0	0	0	0	0	21
Mercer	300	290	3	7	247	9	4	2	0	0	0	38
Mifflin	91	91	0	0	74	3	0	0	1	0	0	13
Monroe	136	130	2	4	109	6	3	0	0	0	0	18
Montgomery	1,608	1,487	30	91	1,305	95	27	5	4	1	0	171
Montour	102	100	0	2	91	3	2	0	0	0	0	6
Northampton	273	264	3	6	207	17	1	0	0	0	0	48
Northumberland	105	100	2	3	88	4	1	0	0	0	0	12
Perry	24	23	0	1	21	1	0	0	0	0	0	2
Philadelphia	1,925	1,752	45	128	1,462	137	41	19	13	2	0	251
Pike	18	17	0	1	13	1	0	0	0	0	0	4
Potter	16	16	0	0	14	0	0	0	0	0	0	2
Schuylkill	245	240	0	5	184	12	2	0	1	0	0	46
Snyder	38	36	0	2	29	3	0	0	1	0	0	5
Somerset	111	109	1	1	92	6	1	0	0	0	0	12
Sullivan	1	1	0	0	1	0	0	0	0	0	0	0
Susquehanna	47	47	0	0	39	1	0	0	0	0	0	7
Tioga	41	39	0	2	32	1	3	0	0	0	0	5
Union	69	67	0	2	59	1	1	0	1	0	0	7
Venango	152	149	0	3	128	4	1	2	0	0	0	17
Warren	103	98	3	2	93	4	0	0	0	0	0	6
Washington	305	293	2	10	244	15	6	1	1	0	0	38
Wayne	70	66	1	3	60	3	0	1	1	0	0	5
Westmoreland	651	619	2	30	540	34	8	1	0	0	0	68
Wyoming	30	29	0	1	24	2	1	0	0	0	0	3
York	348	339	0	9	286	16	1	1	1	0	0	43
County Not Specified	535	491	10	34	298	37	5	5	4	2	0	184
TOTAL	20,427	19,290	239	898	16,304	1,104	285	85	88	8	0	2,553

Appendix M

Basic Professional Preparation and Highest Degree Held for Inactive Registered Nurses in Pennsylvania, 1972[a]

	Basic Preparation*				Highest Degree Held*							
County	Total	Diploma	AA/AS Nursing	BA/BS Nursing	Less Than BA/BS	BA/BS Nursing	BA/BS Other	MA/MS Nursing	MA/MS Other	Doctorate	Other	Unknown
Adams	84	75	1	8	52	7	5	1	3	0	0	16
Allegheny	4,097	3,669	49	379	2,229	379	51	50	64	4	0	1,320
Armstrong	128	122	0	6	77	6	2	0	2	0	0	41
Beaver	437	411	2	24	301	24	9	4	3	0	0	96
Bedford	66	62	1	3	37	3	1	1	1	0	0	23
Berks	897	846	3	48	569	50	16	10	7	0	0	245
Blair	388	370	7	11	214	17	2	0	0	0	0	155
Bradford	137	129	0	8	77	8	2	1	1	0	0	48
Bucks	1,060	982	12	66	656	70	14	3	12	2	0	303
Butler	401	371	4	26	232	30	4	2	1	0	0	132
Cambria	498	477	7	14	318	20	2	4	3	0	0	151
Cameron	8	8	0	0	5	0	0	0	0	0	0	3
Carbon	147	144	0	3	94	3	2	2	0	0	0	46
Centre	283	269	1	13	153	14	6	1	3	0	0	106
Chester	1,012	915	12	85	560	91	35	5	4	0	0	317
Clarion	50	50	0	0	37	0	0	0	0	0	0	13
Clearfield	187	182	0	5	105	9	3	0	1	0	0	69
Clinton	66	60	0	6	30	8	1	0	1	0	0	26
Columbia	149	144	0	5	89	10	4	2	1	0	0	43
Crawford	176	169	0	7	119	7	2	0	2	1	0	45
Cumberland	515	464	5	46	333	49	5	4	7	0	0	117
Dauphin	744	711	3	30	322	40	5	5	9	0	0	363
Delaware	1,242	1,104	22	116	755	103	29	12	25	2	0	316
Elk	84	73	1	10	43	8	1	0	2	0	0	30
Erie	699	633	5	61	383	60	8	3	6	1	0	238
Fayette	280	269	4	8	178	13	6	1	0	0	0	82
Forest	12	11	0	1	9	1	1	0	0	0	0	1
Franklin	190	175	2	13	98	14	3	2	3	0	0	70
Fulton	13	9	0	4	2	1	2	2	0	0	0	6
Greene	39	35	0	4	25	4	0	1	0	0	0	9
Huntingdon	74	72	1	1	41	1	1	0	1	0	0	30
Indiana	184	177	0	7	113	7	0	0	0	0	0	60
Jefferson	83	77	0	6	53	9	2	0	1	0	0	18
Juniata	29	27	0	2	14	2	2	0	0	0	0	11
Lackawanna	656	627	4	25	341	24	6	7	6	1	0	271

(Cont'd)

[a]Ruth Morgan and Margaret M. Balog, Pennsylvania's Nurses: 1972 Inventory of Registered Nurses, Division of Public Health Nursing, Pennsylvania Department of Health, Harrisburg, Pa., 1975.

*Degree abbreviations: AA--Associate Arts; AS--Associate Science; BA--Bachelor of Arts; BS--Bachelor of Science; MA--Master of Arts; MS--Master of Science

Appendix M (continued)

County	Basic Preparation				Highest Degree Held							
	Total	Diploma	AA/AS Nursing	BA/BS Nursing	Less Than BA/BS	BA/BS Nursing	BA/BS Other	MA/MS Nursing	MA/MS Other	Doctorate	Other	Unknown
Lancaster	875	816	2	57	495	61	22	4	7	0	0	286
Lawrence	286	275	2	9	129	9	3	1	4	0	0	140
Lebanon	169	157	4	8	115	8	4	0	0	0	0	41
Lehigh	832	782	4	46	491	57	8	11	8	1	0	256
Luzerne	1,205	1,150	5	50	663	59	11	3	14	0	0	455
Lycoming	323	308	0	15	167	20	6	0	2	0	0	128
McKean	131	122	0	9	71	9	1	1	1	0	0	48
Mercer	262	243	3	16	136	15	9	2	2	0	0	78
Mifflin	98	94	0	4	66	6	2	1	0	0	0	23
Monroe	129	116	5	8	78	10	2	1	1	0	0	37
Montgomery	1,954	1,764	25	165	1,130	166	42	22	31	3	0	540
Montour	96	89	1	6	52	7	3	0	1	0	0	33
Northampton	698	655	5	38	365	45	11	3	8	0	0	266
Northumberland	257	245	0	12	140	14	3	1	0	0	0	99
Perry	48	43	0	5	32	1	3	2	1	0	0	9
Philadelphia	2,095	1,964	18	113	736	110	26	20	40	3	0	1,160
Pike	24	23	0	1	15	2	0	0	0	0	0	7
Potter	22	20	0	2	14	2	0	0	0	0	0	6
Schuylkill	478	459	2	17	278	24	5	1	1	0	0	169
Snyder	34	34	0	0	29	0	0	0	0	0	0	5
Somerset	153	146	1	6	86	5	3	0	3	0	0	56
Sullivan	11	11	0	0	7	0	0	0	0	0	0	4
Susquehanna	68	64	3	1	41	3	1	0	0	0	0	23
Tioga	76	68	0	8	37	4	2	1	1	0	0	31
Union	59	55	0	4	33	3	2	0	0	0	0	21
Venango	210	200	2	8	90	7	4	1	1	0	0	107
Warren	114	103	5	6	74	6	0	2	0	0	0	32
Washington	421	388	3	30	236	34	9	2	4	0	0	136
Wayne	84	82	2	0	58	1	0	1	0	0	0	24
Westmoreland	1,046	973	11	62	645	63	17	6	17	2	0	296
Wyoming	53	49	0	4	33	4	2	1	1	0	0	12
York	579	531	7	41	326	48	13	2	5	2	0	183
County Not Specified	9,544	8,984	83	477	4,144	578	126	50	55	9	0	4,582
TOTAL	37,549	34,932	339	2,278	19,716	2,473	572	263	380	32	0	14,113

Employment in Selected Health Professions and Occupations in Pennsylvania, 1970[a]
(Employment in Medical and Other Health Services)

Occupation	Total Employment	Office of Physician	Office of Dentist	Office of Chiropractor	Hospitals	Nursing Homes	Health Services NEC	Total
Health Support Services								
Clinical Laboratory Technologists/Technicians	7,535	461			6,178	30	511	7,180
Child Care Workers	9,578	17			1,367	406	62	1,852
Dental Assistants	4,468	81	4,043		108	4	76	4,312
Dental Hygienists	895	5	626		15		40	686
Dental Laboratory Technicians	1,575	25	320		59		867	1,271
Health Aides (except nurses)	6,287	1,487	57	12	3,949	178	242	5,925
Health Records Technologists/ Technicians	603	8	8		549	4	5	574
Nurses Aides/Orderlies	35,700	95	40		27,182	6,558	312	34,187
Nurses, Practical	18,503	554	24		13,542	2,567	891	17,578
Radiologic Technologists/ Technicians	3,484	402	26	5	2,823	7	169	3,432
Recreation Workers	2,993				185	60	6	251
Secretaries, Medical	6,608	3,084	108		2,728	27	100	6,047
Social Workers	15,918	21		8	1,301	113	320	1,763
Therapists	4,686	40			2,599	130	502	3,271
Therapy Assistants	112				79	4	9	92
Other Health Technologists/ Technicians	3,701	92			2,170	5	318	2,585

[a]"Iterated Pennsylvania Matrix, 1970," U.S. Department of Labor, Bureau of Labor Statistics, Mideast Regional Office, Philadelphia, Pa., 1974.

Employment in Selected Health Professions and Occupations in Pennsylvania, 1970[a]
(Employment in Business, Industry and Other Services)

Occupation	Agriculture, Forestry, Fisheries	Mining & Construction	Manufacturing	Transportation Public Utilities	Wholesale and Retail	Finance, Insurance, Real Estate	Miscellaneous Related Services	Government Services	Legal Service	Educational Service	Nonprofit Organizations	Private Households	Total
Health Support Services													
Clinical Laboratory Technologists/Technicians	19		71		8	7	52	27		121	50		355
Child Care Workers		7	11		10	7	3,281	192		2,596	1,622		7,726
Dental Assistants	6	7	5		8	5	7	27	23	68			156
Dental Hygienists									4	205			209
Dental Laboratory Technicians		6	219		43				6	21	9		304
Health Aides (except nurses)	23		58	40	30	8	26	26		75	76		362
Health Records Technologists/ Technicians				5					4	20			29
Nurses Aides/Orderlies	16		83	25		5	311	125	19	214	715		1,513
Nurses, Practical	7		4	5	6	13	371	68	6	102	343		925
Radiologic Technologists/ Technicians			10				11	6		19	6		52
Recreation Workers	13		5			13	1,347	232		197	927	8	2,742
Secretaries, Medical	12		85	20	14	16	58	67	83	117	89		561
Social Workers			21	5		36	150	1,750	12	892	11,281	8	14,155
Therapists			6	6	5	7	15	341	7	782	224	22	1,415
Therapy Assistants				7						4	9		20
Other Health Technologists/ Technicians	12		187	22	20		90	37	6	602	140		1,116

[a]"Iterated Pennsylvania Matrix, 1970," U.S. Department of Labor, Bureau of Labor Statistics, Mideast Regional Office, Philadelphia, Pa., 1974.

Employment in Selected Health Professions and Occupations in Pennsylvania, 1970[a]
(Employment in Medical and Other Health Services)

Occupation	Total Employment	Office of Physician	Office of Dentist	Office of Chiropractor	Hospitals	Nursing Homes	NEC*	Total Employed in Medical and Other Health Services
Professional Services								
Chiropractors	1,016	13	8	975				996
Dietitians	2,234	5			1,577	96	25	1,703
Health Administrators	3,959				2,977	564	418	3,959
Nurses, Registered	62,531	4,003	180	15	45,341	2,767	3,042	55,348
Optometrists	1,273	20					1,106	1,126
Pharmacists	7,161	21	58		752	3	16	850
Podiatrists	637	20			6		601	627
Psychologists	1,620	5			529	10	53	597
Veterinarians	818	4			7			11

[a]"Iterated Pennsylvania Matrix, 1970," U.S. Department of Labor, Bureau of Labor Statistics, Mideast Regional Office, Philadelphia, Pa., 1974

*NEC means not elsewhere counted.

Employment in Selected Health Professions and Occupations in Pennsylvania, 1970[a]
(Employment in Business, Industry and Other Services)

Occupation	Agriculture, Forestry, Fisheries	Mining and Construction	Manufacturing	Transportation Public Utilities	Wholesale and Retail	Finance, Insurance, Real Estate	Miscellaneous Professional Services	Government Services	Legal Services	Educational Services	Nonprofit Organizations	Private Household	Total
Professional Services													
Chiropractors		5							15				20
Dietitians	13		21		141		23	56		208	69		531
Health Administrators													
Nurses, Registered	12	41	1,347	71	151	139	418	325	17	2,971	613	1,078	7,183
Optometrists		6	14		110					6	11		147
Pharmacists		6	184		6,032		10	32		12	35		6,311
Podiatrists				4		6							10
Psychologists			25	5	9	7	206	53		641	77		1,023
Veterinarians	741		23				7	36					807

[a]"Iterated Pennsylvania Matrix, 1970," U.S. Department of Labor, Bureau of Labor Statistics, Mideast Regional Office, Philadelphia, Pa., 1974.

Projected Employment in Selected Health Professions and Occupations in Pennsylvania, 1980[a]
(Employment in Medical and Other Health Services)

Occupation	Total Employment	Per Cent Increase 1970-1980	Office of Physician	Office of Dentist	Office of Chiropractor	Hospitals	Nursing Homes	NEC*	Total
Health Support Services									
Clinical Laboratory Technologists/Technicians	12,211	62	647			10,113	45	937	11,742
Child Care Workers	12,788	34	12			1,762	590	30	2,394
Dental Assistants	6,056	36	73	5,631		153	4	104	5,965
Dental Hygienists	1,879	109	11	1,217		24		110	1,362
Dental Laboratory Technicians	1,706	8	36	214		78		1,077	1,405
Health Aides (except nurses)	10,042	60	2,572	109	22	6,185	378	395	9,661
Health Records Technologists/ Technicians	1,344	123	7	7		1,296	8	12	1,330
Nurses Aides/Orderlies	43,602	22	107	39		32,849	8,659	357	42,011
Nurses, Practical	27,580	49	780	30		20,866	3,914	1,114	26,704
Radiologic Technologists/ Technicians	4,846	39	504	34	14	3,980	10	267	4,809
Recreation Workers	4,104	37				257	109	7	373
Secretaries, Medical	9,789	48	5,167	175		3,773	54	151	9,320
Social Workers	20,354	28	27			1,781	196	415	2,419
Therapists	7,344	57	66			4,177	275	671	5,189
Therapy Assistants	201	79				141	8	19	168
Other Health Technologists/ Technicians	5,738	55	205			3,426	11	564	4,206

*NEC means not elsewhere counted.

[a]"Iterated Pennsylvania Matrix, 1980," U.S. Department of Labor, Bureau of Labor Statistics, Mideast Regional Office, Philadelphia, Pa., June 4, 1974.

Projected Employment in Selected Professions and Occupations in Pennsylvania, 1980[a]
(Employment in Business, Industry and Other Services)

Occupation	Agriculture, Forestry, Fisheries	Mining & Construction	Manufacturing	Transportation Public Utilities	Wholesale and Retail	Finance, Insurance, Real Estate	Miscellaneous Related Services	Government Services	Legal Services	Educational Services	Nonprofit Organizations	Private Households	Total
Health Support Services													
Clinical Laboratory Technologists/Technicians	7		79		7		88	19		179	90		469
Child Care Workers			10		13		4,300	209		3,826	2,036		10,394
Dental Assistants							19	16	6	50			91
Dental Hygienists										517			517
Dental Laboratory Technicians			271		20					10			301
Health Aides (except nurses)	5		43	6	27		38	34		122	106		381
Health Records Technologists/ Technicians										14			14
Nurses Aides/Orderlies	3		56		15		332	166	34	268	717		1,591
Nurses, Practical	4						274	42	4	138	414		876
Radiologic Technologists/ Technicians							10	9		10	8		37
Recreation Workers	11					9	2,059	290		287	1,075		3,731
Secretaries, Medical	9		88		17	9	81	28	32	117	88		469
Social Workers						58	148	2,929	19	1,336	13,440	5	17,935
Therapists					8	33	12	360		1,419	327	16	2,155
Therapy Assistants				12						6	15		33
Other Health Technologists/ Technicians	11		321	30	38		141	51		928	12		1,532

[a]"Iterated Pennsylvania Matrix, 1980," U.S. Department of Labor, Bureau of Labor Statistics, Mideast Regional Office, Philadelphia, Pa., June 4, 1974.

Projected Employment in Selected Health Professions and Occupations in Pennsylvania, 1980[a]
(Employment in Medical and Other Health Services)

Occupation	Total Employment	Per Cent Increase 1970-1980	Office of Physician	Office of Dentist	Office of Chiropractor	Hospitals	Nursing Homes	NEC*	Total
Professional Services									
Chiropractors	1,512	49	34		1,478				1,512
Dietitians	2,870	28	4			2,023	124	31	2,182
Health Administrators	5,748	45				4,241	1,007	500	5,748
Nurses, Registered	80,550	29	4,143	208	28	60,587	2,744	5,576	73,286
Optometrists	1,735	36	21					1,547	1,568
Pharmacists	8,057	13	14			793	2	19	828
Podiatrists	845	33	18			9		818	845
Psychologists	2,861	77	7			1,248	26	118	1,399
Veterinarians	1,225	50				6			6

*NEC means not elsewhere counted.

[a]"Iterated Pennsylvania Matrix, 1980," U.S. Department of Labor, Bureau of Labor Statistics, Mideast Regional Office, Philadelphia, Pa., June 4, 1974

Projected Employment in Selected Health Professions and Occupations in Pennsylvania, 1980[a]
(Employment in Business, Industry and Other Services)

Occupation	Agriculture, Forestry, Fisheries	Mining & Construction	Manufacturing	Transportation Public Utilities	Wholesale and Retail	Finance, Insurance, Real Estate	Miscellaneous Professional Services	Government Services	Legal Services	Educational Services	Nonprofit Organizations	Private Household	Total
Professional Services													
Chiropractors													
Dietitians	2		12		358		11	79		176	50		688
Health Administrators													
Nurses, Registered	1	30	1,342	67	119	129	141	395		3,545	527	968	7,264
Optometrists					167								167
Pharmacists			267		6,909		6	35		4	8		7,229
Podiatrists													
Psychologists			16				275	77		979	115		1,462
Veterinarians	1,096		34				8	74		7			1,219

[a]"Iterated Pennsylvania Matrix, 1980," U.S. Department of Labor, Bureau of Labor Statistics, Mideast Regional Office, Philadelphia, Pa., June 4, 1974